THE DENTAL PRACTITIONER

monthly journal for the Practitioner and his Staff

VOL. I, NO. 4 DECEMBER, 1950

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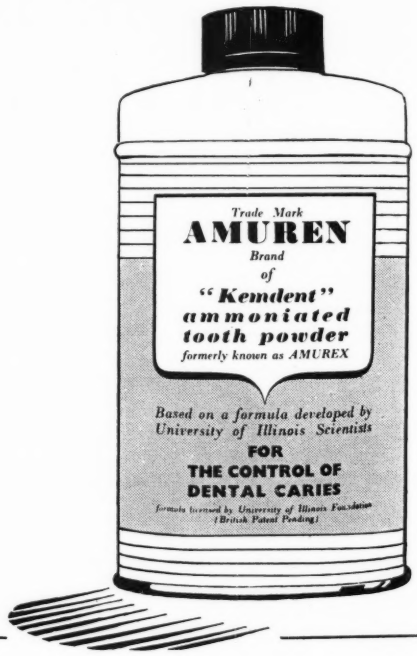

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THE
DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

Vol. I, No. 4 December, 1950

ITORIAL

WHAT'S NEW?

In the circular originally sent out announcing The Dental Practitioner we promised our readers an up-to-date survey of new instruments and materials. So far we have been unable to incorporate such a section in this journal, but as we feel that information relating to the latest items of equipment, etc., would be valuable to all the keen members of our profession, we intend to bombard the manufacturers and agents to give us the opportunity to try out these products and to report upon them.

We feel, in this respect, that you, our readers, can be of very great assistance. We suggest that you explain to the representative the next time he calls that The Dental Practitioner will be supplying impartial test reports on all new products and that you intend to await information before placing an order.

THIS IS NEW—S

The report of the United Kingdom Dental Mission on New Zealand School Dental Nurses has now been published and an official summary is given on page 113. No doubt this report will play a very influential part in the discussion appertaining to the new dental legislation which is to be introduced in this country in the near future. The Dental Practitioner is entirely non-political; equally so, it is completely unbiased, and as this report is so very important to us all we feel that some space should be reserved to allow our readers the opportunity of expressing their views and for free discussion to take place. Therefore we pass the pen to you all. Let the battle commence!

THE PRESENT NUMBER

It is a pleasant duty to acknowledge with gratitude the help received from members of the staff of the University of Bristol Dental School. Not only have they contributed valuable articles to this number, but they have furnished us with sufficient material for the January number as well. It is help of this magnitude that lightens the editorial burden, and we are sure our readers will be quick to appreciate the value of the contributions.

FLUORINE TREATMENT IN PERSPECTIVE

A REVIEW OF MODERN METHODS OF CARIES CONTROL

By **PROFESSOR A. I. DARLING**, M.R.C.S., L.R.C.P., M.D.S. U.Durh., F.D.S. R.C.S.

Professor of Dental Surgery, and Director of Dental Studies, University of Bristol

At a recent meeting in America to discuss the control of dental caries Dr. R. W. Bunting, who is in many ways the direct successor of W. D. Miller, and one of the elder statesmen of caries research, made the following remarks:—

"Looking back in reminiscence over the years of active study of dental caries, we have seen many alluring theories come and go: panaceas and methods of prevention have been proposed and widely accepted, only to be found that they were but will-o'-the-wisps that led nowhere. To-day they are gone and forgotten, except for their record in the annals of our profession, but one day they were broadcasted throughout the land as great discoveries which would forever abolish the scourge of dental caries. I have often thought, in reviewing the stages by which our present knowledge has been evolved, that if I had the pen of a Paul de Kruif, I would write a book outlining the interesting trends of thought through which we have passed and I would call it 'The Romance of Dental Caries'."

There can be little doubt that in fluoride treatment we have, at least, a method which will reduce the incidence of caries. More than this—we are now so statistically minded that we make controlled investigations to establish our facts. Unfortunately there are still few who have either the time or the inclination to study the data critically to assure themselves of the true facts.

We are in real danger of regarding fluorine as a sovereign cure for caries, and this view is certainly not based on fact. It would, therefore, be wise to consider briefly the facts about fluoride treatment and its relation to the carious process and other methods of control so that we might begin to see the whole picture and fluoride treatment in its proper perspective.

The first attack of caries is on the enamel, and for this reason any treatment aimed at the prevention or control of caries must influence the process at this stage.

The established facts about the carious process in the enamel are few. We know that a decalcification of the tooth surface is caused by acid and that this is accompanied by an alteration in the organic matrix, which is probably proteolytic in nature.

It occurs in areas of stagnation, and it is very probable that the acid is produced by the action of bacteria on fermentable carbohydrates.

Of several mouth organisms which are capable of producing acid from fermentable carbohydrates the *Lactobacillus odontolyticus* seems to be most closely related to the carious process. Lactobacillus counts, which are a measure of the numbers of these organisms present in one cubic centimetre of saliva, are therefore taken as a guide to the degree of caries activity. It must be understood that while this method is a good guide to the degree of caries activity, it is not a substitute for the actual assessment of the number of carious cavities produced in a mouth in a given time. We are still without the final evidence which will demonstrate conclusively the role of the lactobacillus in caries.

However, our present assumption is that the lactobacilli, acting on fermentable carbohydrates in stagnation areas, produce acid which attacks susceptible teeth. We assume that this is the first attack and is followed closely by a proteolytic process in which other organisms destroy the organic matrix of the enamel.

It is well known that in most mouths some stagnation areas become carious while others do not. Too little is known of the cause of this "selection", whether it is by chance or because of a variation in the susceptibility of the enamel. Any enamel surface which becomes carious is obviously susceptible, and we

must therefore include a susceptible enamel surface as one of the necessary factors for caries production until we can describe it more accurately.

The incidence of caries in the various teeth in different age groups is a very interesting study. There are one or two salient points which emerge from the study of Knutson's statistics (Knutson, Klein, and Palmer, 1938).

A further point of interest is to compare the incidence of caries on smooth or plane surfaces with that occurring in pits and fissures. From other statistics (Hyatt, 1924) it can be seen that approximately two-thirds of all cavities in posterior teeth occur in the occlusal surfaces (*Table II*). By further calculation from these figures and those of Knutson (*Tables I* and *Ia*), it can be shown that between the ages of 6 and

Table I.—Number of D.M.F. Teeth per 100 Children
(*Condensed from Knutson*, 1938)

Age	6	7	8	9	10	11	12	13	14	15
Incisors and canines	0·3	0·2	2·3	20·6	24·6	39·5	60·4	71·1	101·8	114·9
Molars and premolars	27·9	72·0	137·1	181·6	226·9	244·9	306·2	382·5	426·1	528·6

Table Ia.—Percentage Age Distribution of Caries according to Tooth Form
(*From Table I*)

Age	6	7	8	9	10	11	12	13	14	15
Incisors and canines	1·1	0·3	1·7	11·3	10·8	15·7	19·1	18·6	23·9	21·7
Premolars and molars	98·9	99·7	98·3	88·7	89·2	84·3	80·9	91·4	76·1	78·3

These cover children up to the age of 15 years and demonstrate that throughout the whole of this age group the incidence of caries in the first molar is never less than 45 per cent of all caries. At age 15 years, more than 75 per cent of first molars are carious. At the same age 50 per cent of second lower molars and 25 per cent of second upper molars are carious, while less than 25 per cent of upper incisors are also carious. There can be no doubt that it is molar caries which causes the greatest destruction of the child's teeth.

15 years approximately 50–65 per cent of all cavities occur in occlusal surfaces while

Table II.—Percentage Age Distribution of Cavities on Posterior Teeth
(*Condensed from Hyatt*, 1924)

Occlusal		65·4
Buccal	4·3	34·6
Lingual	2·5	
Distal	13·9	
Mesial	13·9	

35–50 per cent occur in the smooth surfaces of the teeth (*Table III*). These figures will be of considerable interest in the discussion of the results of fluoride treatment.

Table III.—Percentage of Age Distribution of Caries according to Site

Age	6	7	8	9	10	11	12	13	14	15
Incisors and canines (all plane surface)	1·1	0·3	1·7	11·3	10·8	15·7	19·1	18·6	23·9	21·7
Molars and premolars — plane surfaces	32·9	33·2	32·8	29·6	29·7	28·1	27·0	27·1	28·7	29·4
Molars and premolars — occlusal surfaces	66·0	66·5	65·5	59·1	59·5	56·2	53·9	54·3	47·4	48·9
Plane surfaces	**34·0**	**33·5**	**34·5**	**40·9**	**40·5**	**43·8**	**46·1**	**45·7**	**53·6**	**51·1**
Occlusal surfaces	**66·0**	**66·5**	**65·5**	**59·1**	**59·5**	**56·2**	**53·9**	**54·3**	**47·4**	**48·9**

Plane surface caries varies between 35 per cent and 50 per cent of all caries.

There are two approaches to the treatment of any condition. One is the empirical method which has produced the silver nitrate and fluoride treatments of caries, while the other is the rational approach in which the methods of treatment are based on rational deduction and are designed to prevent the initiation or maturation of the disease process.

The rational approach to the prevention or control of caries must lie in breaking the chain of circumstances which, we assume, leads to the attack upon the enamel, or in increasing the resistance of the enamel to caries. Theoretically it may be achieved by any of the following methods:—

1. Control of fermentable carbohydrates in, or their elimination from, the diet;
2. Elimination or reduction of oral lactobacilli;
3. Elimination or cleansing of stagnation areas;
4. Neutralization of acids;
5. Prevention of proteolysis;
6. Increasing the resistance of the tooth to decalcification and/or proteolysis:—
   a. Production of well-formed teeth;
   b. Artificial assistance to decrease solubility of the enamel.

On this basis several methods of widely differing value are available or on trial for control or prevention of caries. These include:—

1. Reduction of sugars in a balanced diet.
2. Elimination or reduction of lactobacilli in the mouth by:—
   a. Antiseptics;
   b. Penicillin;
   c. Ammonia urea compounds;
   d. Systemic immunization.
3. Elimination or cleansing of stagnation areas by:—
   a. Conservative treatment;
   b. Oral hygiene.
4. *a.* Prevention of acid formation by mouth organisms, by means of enzyme inhibitors.
   b. Use of alkalis to neutralize acids when formed.
5. Prevention of proteolysis—no method yet demonstrated.
6. Production of well-formed teeth by dietary control of the expectant mother and child during the years of tooth development and calcification.

Control of caries also deals with the prevention of high incidence such as is said to arise in certain systemic conditions. We are now satisfied that systemic conditions themselves do not cause caries (Robinson, 1948). They may affect tooth development or they may cause a decrease in saliva formation, but they do not cause caries. The incidence of caries in the pregnant woman is no higher than that in comparable non-pregnant women, other factors being equal (Ziskin and Hotelling, 1937).

As for the effect of hypoplasia and vitamin D on the incidence of caries, there is evidence that teeth formed during a sub-optimal intake of vitamin D are more susceptible to caries, but any excess over the optimal intake of 400 to 800 international units per day is of no value in assisting tooth formation. Nor is there any value in the administration of supplements of vitamin D to prevent caries in erupted teeth (Armstrong, 1948).

The evaluation of any measure for the control of dental caries depends on the answers to the following questions:—

1. Does it work? That is: (*a*) Does it reduce the caries incidence? (*b*) Does it reduce the lactobacillus count?
2. How does it work? That is, how is its maximum effect achieved?
3. What injurious side-effects (*a*) Occur? (*b*) Are likely?
4. Is it a practicable method for: (*a*) Treatment of the individual? (*b*) Treatment of the community?

The application of the first question readily divides the possible control measures into three groups:—

Those which do not appear to work:—

1. The elimination of lactobacilli from the mouth by antiseptics;
2. The use of alkalis to neutralize the acid formed.

Those which do appear to work:—

1. The reduction of sugars in a balanced diet;
2. The production of well-formed teeth by dietary control;
3. Operative dental surgery;

4. The topical application of fluorides.

Those for which there is as yet insufficient evidence:—

1. Elimination or reduction of oral lactobacilli by:—

a. Penicillin;

b. Ammonia urea compounds;

c. Systemic immunization;

2. The use of enzyme inhibitors to prevent or reduce acid formation;

3. Prevention of stagnation by oral hygiene;

4. Silver nitrate treatment;

5. The addition of fluorine to communal water supplies.

Before dealing with the effective methods it would perhaps be wise to consider briefly those methods on trial, as they may well be the cures of the future.

It has been shown that penicillin applied locally in various forms will reduce the numbers of oral lactobacilli. It is also known that it will reduce the incidence of caries in some animals (Hill, 1948). It is not known if it will reduce the incidence of dental caries in man.

The ammonia urea compounds are at a similar stage of investigation. It is known that the use of 5 per cent dibasic ammonium phosphate with 3 per cent urea in a dentifrice or mouthwash produces an astonishing decrease in the number of oral lactobacilli, but evidence of the effect on caries incidence is not yet available (Kesel, 1948).

Some caries-immune patients are found to have antibodies in their serum which are effective against lactobacilli. So far it has been possible to produce only a temporary immunization by artificial methods, and no evidence is available to show its effect on caries incidence (Williams, 1948).

Preliminary investigations into the effect of enzyme inhibitors show that the use of chewing gum containing 2 methyl 1, 4 naphthoquinone reduced the incidence of caries by 60–90 per cent in a small group of patients who had very active caries (Fosdick, 1948). The method seems to offer great promise, but sufficient evidence is not yet available to justify its recommendation to patients as a control measure. It is to be hoped that when finally presented it will not involve a widespread use of chewing gum.

Oral hygiene is generally accepted as a means of controlling caries, but it is rather surprising that there is no statistical evidence available to support this practice. We shall continue to advise toothbrushing, scaling, and mouthwashes, but it is to be hoped that the evidence to justify us will soon be forthcoming.

Two methods have been given unusually wide publicity in recent years. These are the topical application of silver nitrate and the addition of fluorine to the water supply.

It is known that silver nitrate solution applied to carious lesions acts on both the organic and inorganic constituents of the enamel (Zander, 1948). It is also probable that it acts on lamellæ. There is at present insufficient evidence to show that the incidence or progress of caries can be reduced by this method, and the part, if any, played by lamellæ in the carious process has not been adequately demonstrated.

The incidence of caries in communities with water supplies containing more than one part per million of natural fluoride is known to be lower than in other communities. This is most marked in children of 12 to 14 years of age who have used such water throughout their lives. The reduction is most marked in the upper incisors, where the incidence of caries may be only 10 per cent of the general incidence in other communities (Arnold, 1948). In such communities lactobacillus counts are considerably reduced, but it is not yet known by what mechanism the reduction in caries incidence is effected. It is generally believed that the action is local within the mouth rather than systemic, and it is thought that some reduction can be demonstrated in those who begin to use such a water supply after all teeth have erupted. If the concentration of fluorine in the water is greater than 1·5 parts per million, dental fluorosis may occur, but this is not associated with any further reduction in the incidence of caries.

It has therefore been assumed that the artificial fluorination of water supplies will produce a similar reduction in caries, and investigations along these lines have already been started. It is unlikely that these experiments will produce any valuable evidence for another

five to ten years. In the meantime we have no direct evidence to show that artificial fluorination of water supplies will reduce caries incidence. We must await results before this can be considered as a satisfactory method of reducing or preventing caries.

It has been suggested that the administration of fluorides in tablets or in food might also reduce the incidence of caries. The evidence available is far from satisfactory and the method cannot be recommended with any hope of success.

Of the established methods, the restriction of sugars with the provision of a well-balanced diet appears to give good results which are well substantiated (Becks, 1948). It is easy to accept this as evidence that the decrease in caries incidence has been caused by the restriction of sugars in the diet, but, in fact, on the evidence given the cause may equally well be the provision of a balanced diet. Whatever the cause, the results are worth noticing: In the year following the commencement of treatment 71·7 per cent of treated patients developed no new cavities, 17·3 per cent developed one or two new cavities, and 11·0 per cent developed three or more cavities. Their previous caries incidence is not given, but the author states that there was a reduction of caries incidence of about 80–90 per cent in the group as a whole. This was associated with a corresponding reduction in lactobacillus counts (Becks, 1948). Though classed as a successful method of control, further evidence is desirable. As a practical measure it seems difficult to ensure the recommended diet outside of institutions. It does not seem a reasonable proposition for private practice.

The use of topically applied fluorides has received much attention in recent years and it has been shown, beyond all doubt, to reduce the incidence of caries by as much as 40 per cent or more in particular circumstances. The key to this statement undoubtedly lies in the "particular circumstances". It is not yet known how topically applied fluorides produce their effect. It is therefore necessary when using such a treatment to stay within the limits of successful experiments, and these limits must now be discussed.

Children up to the age of 15 years have shown a marked reduction in caries after the topical application of fluorides, but above this age there has been only one well-controlled investigation and this reported no success (Arnold, Dean, and Singleton, 1944). This does not mean that the treatment is ineffective for adults but rather that there is not yet sufficient evidence on which to judge.

The greatest success in fluoride treatment has been obtained by the use of 2 per cent sodium fluoride. Greater dilutions have been tried with varied success, and other salts (e.g., potassium and lead fluorides) have been used. It may be that further variations in the salt and dilution used will give even greater success, but for the present 2 per cent NaF seems to be the most satisfactory agent. Some investigators have claimed their greatest reduction of caries incidence with highly acid fluorine solutions as low as *p*H 2·6 (Phillips and Muhler, 1947). Such solutions are likely to injure the enamel, and until more is known of their action and value it is advisable to continue to use a neutral solution.

The number and time of the applications have been varied very considerably by different investigators. On the results obtained there seems little doubt that four applications is the optimum number (*Table IV*). Fewer applications give less satisfactory results and more than four do not seem to increase the effect. There is little other than personal opinion to indicate when such applications should be made, but most operators seem to favour weekly administrations. Applications at three-monthly intervals have certainly failed to produce good results, but this may be caused by other variations.

Perhaps the most important point in the technique is the cleansing of the teeth before application of the fluoride. Of six investigations without preliminary cleansing none obtained more than half of the effect of those in which preliminary cleansing was used (Galagan and Knutson, 1947). (*Table V.*) Cleansing should take the form of scaling where necessary and thorough polishing of all accessible surfaces with pumice and rubber cups or brushes (Knutson, 1948). It seems

that it is not necessary to repeat such treatment after the first application if all four applications are completed within one month.

The duration of the effect is not precisely known, but it does seem to last at least 3–4 years (Bibby, 1947). It is therefore suggested that suitable ages for repetition are 3, 7, 10, and 13 years (Knutson, 1948). This allows for the treatment of teeth which erupt between the applications within a reasonable time after their eruption.

As fluorides are highly toxic substances they must not be used without proper care, but in the strengths and amounts necessary for dental application they are unlikely to be dangerous to the patient.

The treatment recommended (Knutson, 1948) on the basis of these comments is as follows:—

1. Thorough polishing and scaling where necessary.
2. Thorough drying of the teeth to be treated.
3. Application of neutral 2 per cent NaF on cotton-wool applicators.
4. Drying in air for three minutes.

Further scaling and polishing do not seem to be necessary within one month of the first treatment. The area to be treated at one sitting will naturally depend on the age and co-operation of the patient, but it is usually necessary for convenience to divide the mouth into four or more segments, treating two or more at each visit.

Table IV.—Frequency of Application in Fluoride Treatment (*From Knutson*, 1948)

Study	Patients Treated	Teeth Treated	Controls	Age	Prophylaxis	Solution	No. of Applications	Years since First Application	Percentage Age Reduction
Galagan and Knutson (1947)	301 247 259	One side of mouth	Other side of mouth	7–15	Yes	2 per cent NaF	**2** **4** **6**	1 1 1	**21·7** **40·7** **41·0**

Table V.—Prophylaxis and Fluoride Treatment (*From Knutson*, 1948)

Study	Prophylaxis	Patients Treated	Teeth Treated	Controls	Age	Solution	No. of Applications	Years since First Application	Percentage Age Reduction
Knutson, Armstrong, & Feldman (1947)	**No**	472 504 482	One side of mouth	Other side of mouth	7–15	2 per cent NaF	2 4 6	2 2 2	9·3 20·1 21·0
Galagan and Knutson (1947)	**Yes**	301 247 259	One side of mouth	Other side of mouth	7–15	2 per cent NaF	2 4 6	1 1 1	21·7 40·7 41·0

It has been suggested that a similar effect may be obtained by the use of a polishing paste containing sodium fluoride. The evidence available does not support this suggestion (Bibby, 1948).

The recorded results show that, with the full technique as given, a reduction of caries incidence of 40 per cent or slightly more is attainable in children under 15 years of age. In all such successful investigations 100 or more cases were dealt with as a group. When smaller numbers were treated the proportionate reduction of caries incidence for the group was considerably less. In these groups it is at least probable that there were marked individual variations in response. Included in the

average there were most probably some individuals with a reduction of 50 per cent or more, while others showed no reduction and perhaps a few showed an increase.

It is obvious that these are the results of group observation which cannot be applied directly to the individual. No practitioner dare promise to any individual patient a reduction of 40 per cent in caries incidence by such treatment, nor can he be certain of any reduction whatsoever in the individual. The particular patient may well be one of the unfortunate few who may obtain little or no benefit from the treatment.

A closer examination of the results available in relation to the usual incidence of caries in similar groups of children is of interest.

There seems little doubt that the effect of a water supply containing fluorine is most marked in the reduction of caries of anterior teeth (Dean, Jay, Arnold, McClure, and Elvove, 1941). It is thought that the effect is produced by local action within the mouth, and two theories are suggested: either an interference with the enzymes of the acid-producing organisms limiting their powers of acid production (Jay, 1948); or an absorption of fluorine into the surface enamel so that it unites with the calcium salts of the enamel to make them less soluble (Cox and others, 1939; Rae and Clegg, 1945).

It seems reasonable to suggest that in either case the access of fluorine to the organism or the enamel will be much less efficient in pits and fissures than on the smooth surfaces of the teeth. The need for preliminary cleansing of the teeth before the application of fluorides has been demonstrated and pits and fissures are notoriously difficult to clean.

An examination of caries incidence in untreated patients shows that the distribution of caries in posterior teeth is approximately one-third in plane surfaces, and two-thirds in occlusal surfaces (*Table III*), while in anterior teeth almost all caries occurs in plane surfaces. If these figures are applied to an analysis of the caries incidence in all teeth between the ages of 6 and 15 years, when fluorides are known to be effective, it is found that caries is distributed: 50–65 per cent of all caries in pits and fissures and 35–50 per cent in plane surfaces. This latter figure corresponds so well with the 40 per cent reduction of caries incidence with topically applied fluorides that it seems to suggest that the action of fluorides is selective for plane surfaces. If this is true it is obviously of the greatest importance, as the chief cause of loss of teeth in childhood is occlusal caries.

While this suggestion is mainly conjecture, it should cause us to be even more conservative in our estimates of the value of fluoride treatment until we have more exact information.

The annual incidence of caries in children of 6–15 years can be shown from the results of one American study (Knutson, 1948) as an average of less than one cavity per child per annum. If we take a very generous estimate of three cavities per child per annum and allow for the full 40 per cent reduction in each child by means of fluoride treatment, this would mean one cavity per child per annum less than the present figure, that is, a maximum of one less cavity per child to be filled each year, and even this, being an average figure, cannot be guaranteed to any particular child. Furthermore, it is highly probable that the time expended on the fluoride treatment would be greater than the time required to fill the cavity.

It would be unfortunate to minimize the value of the treatment. It may well be of value in the treatment of children in institutions or under school conditions where mass results are of benefit, but at this stage it cannot be said to be of great value in private practice.

There is much greater promise in the fluorinization of water supplies which, it is hoped, will give even better results with much less difficulty in obtaining them.

However, we must wait for the results of such investigations. In the meantime we may still hope for success from some of the other possible methods indicated, but we must continue to assist the proper development and calcification of the teeth and use the old-fashioned methods of conservative dentistry for many years to come.

REFERENCES

ARMSTRONG, W. D. (1948), *J. dent. Res.*, **27**, 376.
ARNOLD, F. A., (1948), *Ibid.*, **27**, 267.
— — DEAN, H. T., and SINGLETON, D. E. (1944), *Ibid.*, **23**, 155.
BECKS, H. (1948), *Ibid.*, **27**, 405.
BIBBY, B. G. (1947), *Ibid.*, **26**, 105.
— — (1948), *Ibid.*, **27**, 149.
COX, G. J., and others (1939), *Ibid.*, **18**, 481.
DEAN, H. T., JAY, P., ARNOLD, F. A., MCCLURE, F. J., and ELVOVE, E. (1941), *Publ. Hlth. Rep., Wash.*, **56**, 761.
FOSDICK, L. S. (1948), *J. dent. Res.*, **27**, 235.
GALAGAN, D. J., and KNUTSON, J. W. (1947), *Publ. Hlth. Rep., Wash.*, **62**, 1477.
HILL, T. J. (1948), *J. dent. Res.*, **27**, 259.
HYATT, T. P. (1924), *Occlusal Fissures.* New York: Metropolitan Life Insurance Co.
JAY, P. (1948), *J. dent. Res.*, **27**, 413.
KESEL, R. G. (1948), *Ibid.*, **27**, 245.
KNUTSON, J. W. (1948), *J. Amer. dent. Ass.*, **36**, 37.
— — ARMSTRONG, W. D., and FELDMAN, F. M. (1947), *Publ. Hlth. Rep., Wash.*, **62**, 425.
— — KLEIN, H., and PALMER, C. E. (1938), *J. Amer. dent. Ass.*, **25**, 1923.
PHILLIPS, R. W., and MUHLER, J. C. (1946), *J. dent. Res.*, **26**, 109.
RAE, J. J., and CLEGG, C. T. (1945), *Ibid.*, **24**, 235.
ROBINSON, B. G. (1948), *Ibid.*, **27**, 113.
WILLIAMS, N. B. (1948), *Ibid.*, **27**, 101.
ZANDER, H. A. (1948), *Ibid.*, **27**, 358.
ZISKIN, D. E., and HOTELLING, H. (1937), *Ibid.*, **16**, 507.

AN UNUSUAL MAXILLARY DENTIGEROUS CYST

By **JOHN W. E. SNAWDON**, M.D.S., M.B., Ch.B., F.D.S. R.C.S.

Consulting Dental Surgeon to the United Bristol Hospitals; Dental Assistant-Dean, University of Bristol Dental School

CASE REPORT

MRS. A. H., aged 21 years, was referred by her medical practitioner complaining of an intermittent discharge into the mouth during the preceding year, and increasing swelling of the left cheek for three months.

ON EXAMINATION.—An external swelling was noted in the left malar and infra-orbital region, which extended to the side of the nose. This was easily seen during examination and could be felt without difficulty, but did not photograph well. The general dental condition was found to be very satisfactory, and the mouth was clean. No gross dental caries was to be seen, and only a small number of fillings were present. On the left side, in the maxilla, the first and third permanent molars were absent, and there was a history of the first molar having been extracted in August, 1947. From the left upper canine to the third molar region considerable firm expansion of the buccal plate of bone was felt (*Fig.* 1), but no palatal swelling could be detected. The teeth in the affected area appeared to be vital, and

Fig. 1.— Showing the swelling in the buccal sulcus.

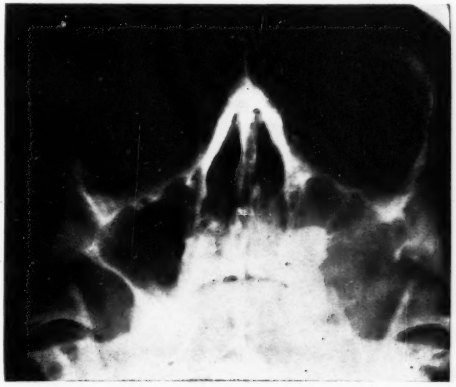
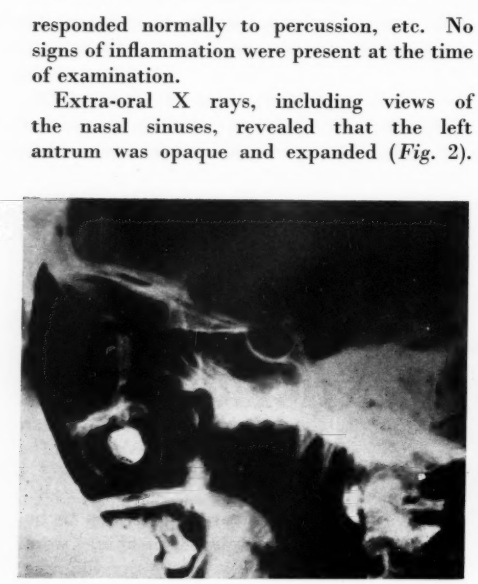


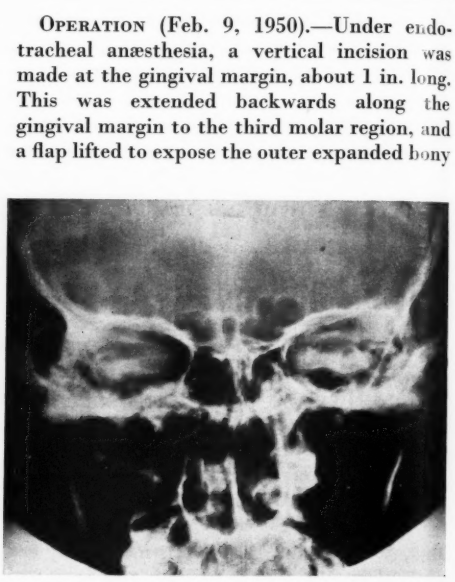
Fig. 2.—Extra-oral X-ray showing opaque left antrum and unerupted tooth.

responded normally to percussion, etc. No signs of inflammation were present at the time of examination.

Extra-oral X rays, including views of the nasal sinuses, revealed that the left antrum was opaque and expanded (*Fig.* 2).

OPERATION (Feb. 9, 1950).—Under endotracheal anæsthesia, a vertical incision was made at the gingival margin, about 1 in. long. This was extended backwards along the gingival margin to the third molar region, and a flap lifted to expose the outer expanded bony





Figs. 3, 4.—X-rays showing the molar tooth in the outer nasal wall and facing into the left antrum.

Also showing was a molar tooth, located in the outer nasal wall and facing into the left antrum (*Figs.* 3, 4). This tooth was considered

wall of the cyst. An opening was made into the cavity, which was found to contain a greenish-yellow fluid having the appearance

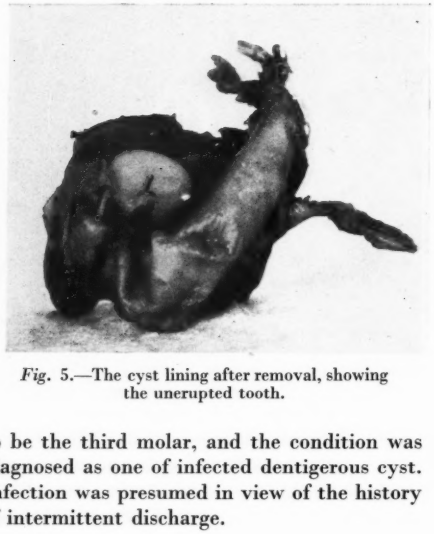


Fig. 5.—The cyst lining after removal, showing the unerupted tooth.

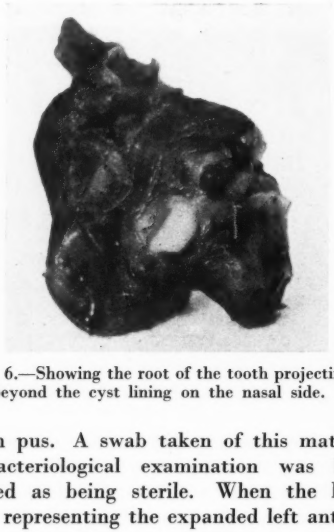


Fig. 6.—Showing the root of the tooth projecting beyond the cyst lining on the nasal side.

to be the third molar, and the condition was diagnosed as one of infected dentigerous cyst. Infection was presumed in view of the history of intermittent discharge.

of thin pus. A swab taken of this material for bacteriological examination was later reported as being sterile. When the large cavity representing the expanded left antrum

was examined the crown of a molar tooth was seen projecting into the cavity from the outer nasal wall, in the position suggested by the pre-operative X-ray examination. The cyst lining was dissected out complete with the tooth (*Fig.* 5). It was seen that the lining was attached about the cervical margin of the tooth, and that the root had been projecting into the nasal cavity (*Fig.* 6). After the provision of adequate intranasal drainage of the cyst cavity in the inferior meatus of the nose the large buccal flap was carefully sutured back into position (*Fig.* 7). A light ribbon

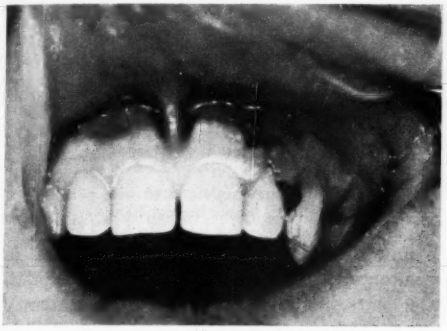


Fig. 7.—The buccal flap sutured back into position.

gauze pack, soaked in 1–100,000 aqueous proflavine solution, was placed in the cyst cavity before closing, and one end of this pack was placed through the antrostomy just inside the left nostril. The pack was removed in the ward before the patient had fully regained consciousness, about an hour or so later.

PROGRESS.—The patient's recovery was uneventful, and the sutures were removed on the tenth day. The post-operative X-ray, taken after one month, shows both antra to be radiolucent (*Fig.* 8). Two weeks after the operation all nasal symptoms had disappeared and the intra-oral condition was entirely comfortable. The swelling seen externally before operation had quite disappeared by the end of the second month. During the convalescent period the nose was sprayed with a 10 per cent argyrol solution two or three times a day.

COMMENT

During the past twelve years the writer has frequently used the above technique for dealing with large maxillary dental cysts, and the results have been most pleasing. The

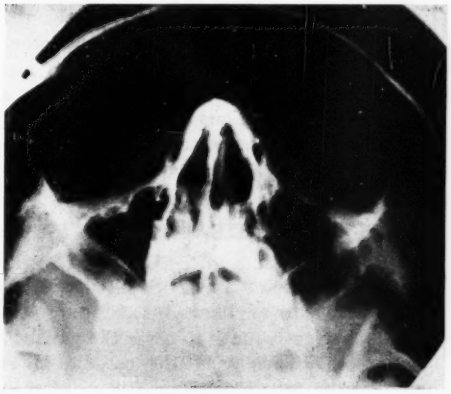


Fig. 8.—Post-operative X-ray one month later, showing a radiolucent left antrum.

convalescent period is very short, and there is little or no post-operative pain. The patient has a slight nasal discharge on the affected side for about 7–10 days after operation, which causes only minor inconvenience and rapidly subsides. If such cavities are treated by methods involving packing, etc., the convalescence is very prolonged, and at the end a large oro-antral or oro-nasal fistula remains which requires a repair operation. Using the above method, this problem does not arise.

The writer is indebted to Mr. F. A. Godman, of the University of Bristol Medical Photographic Unit, for providing the clinical photographs and X-ray reproductions.

"Anyone who has had an old-fashioned toothache, or even a mosquito bite, has first-hand knowledge of inflammation."
—APPLETON, *Bacterial Infection.*

PROSTHETIC NOTES

BITE-RAISING SPLINT: PATCH TEST: BELL'S PALSY APPLIANCE

By **A. O. CHICK**, M.D.S., L.D.S.

Prosthetic Department, University of Bristol

THE practising dentist occasionally asks the staff of his dental school about one or other of the less usual operations in dentistry. The purpose of these notes is to describe briefly a few of these operations in the hope that, although most of the methods will be known to nearly all readers, there may be one or two points unknown to a few.

I. MAKING A BITE-RAISING SPLINT

There are several conditions that call for the temporary raising of a patient's bite by means of a removable appliance. This is usually most conveniently made to cover the patient's lower teeth. This being the case, a lower impression is taken in composition. After it has been removed it should be chilled under the tap and re-inserted in the mouth. This

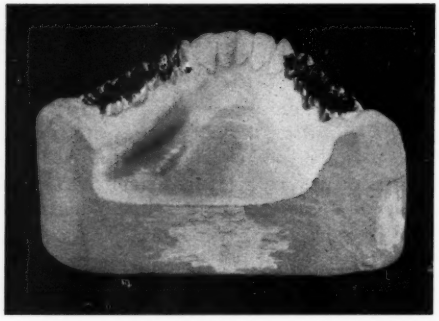


Fig. 1.—Posterior teeth covered with tin-foil.

will have the effect of removing undercuts and ensuring that, if the mechanical work is carefully carried out, the splint may be fitted without any difficulty. The model is next cast and the teeth that will be covered with the splint, usually premolars and molars, are tin-foiled with the thinnest foil obtainable (*Fig.* 1). A 1-mm. stainless steel wire is bent (*Fig.* 2) to hold two wax saddles. These will extend lingually from the first premolar to the last molar and cover the occlusal surfaces of the teeth (*Fig.* 3). This "bite" block is placed in the patient's mouth, after having been softened, and the patient asked to close upon it until the amount of opening is that desired. The splint

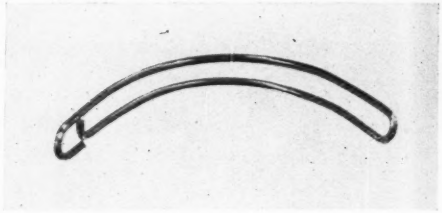


Fig. 2.—One-mm. stainless steel wire bent to form double lingual bar.

is now flasked on the model and packed in clear acrylic. During the finishing of the splint, the dents made in the wax by the patient's upper teeth are opened out so that some freedom of movement will be given.

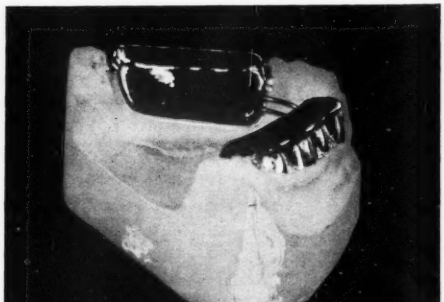


Fig. 3.—Wax bite-blocks built up.

It will invariably be found, if the work has been carried out correctly, that the splint may be fitted without any adjustment and that a little spot grinding will give good occlusion and a free range of movement.

II. CARRYING OUT A PATCH TEST

A patch test is necessary if a tentative diagnosis of sensitivity to a denture base material is to be confirmed. There is a right and a wrong way of carrying out such a test. A patient once presented wearing her denture on a string around her neck. This is one of the wrong ways.

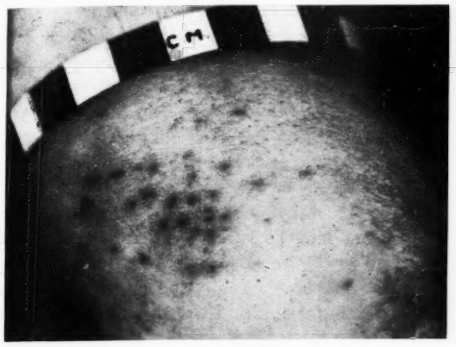


Fig. 4.—Reaction produced by patch test positive to "gold-dust" rubber.

The test should properly be made with fine scrapings from the denture in question, ground down if necessary in a pestle and mortar. These scrapings should be applied to the inner surface of the upper arm by means of a moistened dental napkin. This is completely covered by a patch of 3-in. Elastoplast bandage and the whole protected from peeling up by bandaging lightly with an ordinary gauze bandage.

Fig. 4 shows the result of a patch test positive to "gold-dust" vulcanite. It is unnecessary to do a control patch unless there is a positive reaction. If this is the case, then other tests should be carried out using finely-powdered materials of other types. If a negative result is obtained with one of these, then it is usually safe to assume that dentures made in this material may be worn without sensitivity symptoms appearing.

III. BELL'S PALSY APPLIANCE

In *The Lancet*, Aug. 5, 1944 (pp. 172–3), A. G. Allen and D. W. C. Northfield wrote an extremely useful article on a type of facial support for use in cases of temporary or permanent facial paralysis. If there has been any reference to this in the dental literature, small notice has been taken of it, and the method is still little known. A slight modification of the method is described here.

In the case of an edentulous patient who already has well-fitting upper and lower dentures, all that is necessary is to add wax to the buccal aspect of the upper denture until as much plumping has been obtained as is possible without the denture becoming dislodged. This plumping is cut off sharply in the 4–5 region and the dentures sent to the workroom for the addition of denture base material to the area. At the same time, two parallel horizontal tubes are inserted in the bulk and the denture returned to the surgery. The mechanic should send with it a rod bent to fit into these tubes. It is a convenience to have a wire handle

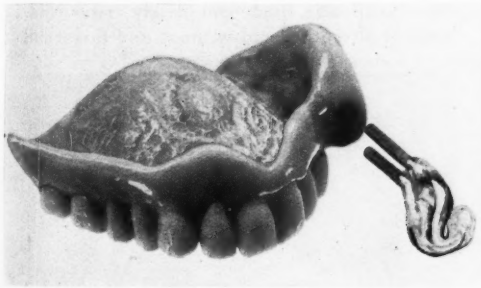


Fig. 5.—Bell's palsy support carried on full upper denture.

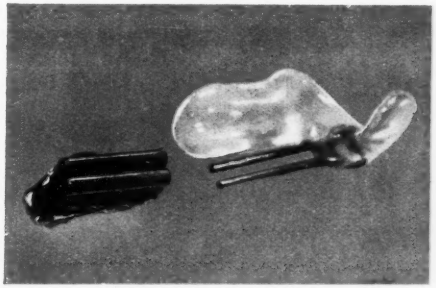


Fig. 6.—Bell's palsy appliance carried on splint.

soldered to the rod to assist removal of the hook, which will now be shaped to fit the corner of the mouth. The hook is moulded

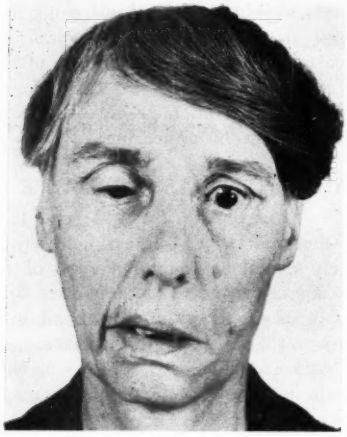


Fig. 7.—A typical case of Bell's palsy.

in composition around this bent rod and handle, until it lifts the corner of the mouth slightly above its correct level. It may be found best to shape the hook only roughly at this stage and, having had it processed, to do the final trimming of it at the chairside prior to polishing. The wire handle is cut out in the flask prior to packing. *Fig.* 5 shows the modification of an existing full upper denture to give support of the type described. In the absence of well-fitting dentures it is, of course, necessary to make some as quickly as possible. The sooner support is given to the tissues the better.

In the case of a patient who is not edentulous, and for whom a partial denture cannot be made in such a way that it will carry a plumper and hook, a copper-silver splint is made. This carries the two tubes, and both plumper and hook are built up in one (*Fig.* 6).

In both types of case the hook is made removable because it interferes with eating and drinking. It is also useful to be able to remove it during the recovery period for increasing lengths of time, in order to give exercise to the muscles.

Figs. 7–9 show a typical case of Bell's palsy and the unfortunate result of the patient's failure to understand that the appliance was not intended to be a fixture. She wore it for two months without removal and returned with the angular ulceration shown. The hook looks unduly small, but this is due to the swelling around it. It was removed and after the ulcer had healed was returned to the patient. She continued to wear it from this time until she had completely recovered, without alteration and without any further ill effects. But she now understood that it should be removed for meals and for cleaning.

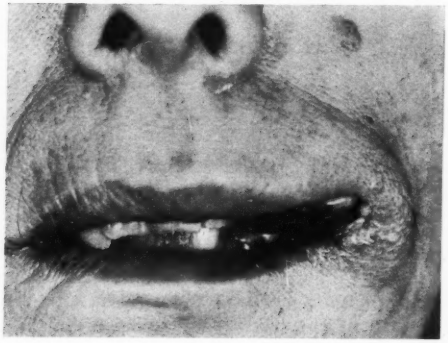


Fig. 8.—Hook in position.

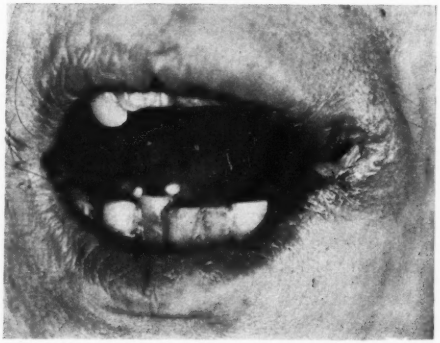


Fig. 9.—Ulceration caused by wearing hook for a long period without removal.

I am indebted to Mr. F. Godman, of the Department of Medical Photography, University of Bristol, for the photographs.

THE SVED BITE-PLATE

By J. S. BERESFORD, B.D.S., H.D.D. R.C.S. Edin.

BITE-PLATES have long been known to dentistry and are generally variations of Kingsley's (1880) bite-plate or of Hawley's (1919) retaining plate (*Fig.* 1 A). Whether designed to bring about movements of individual teeth, to open the bite, or to retain teeth alined by other appliances, they are mainly tissue borne. The conventional upper bite-plate, although closely adapted to the sloping lingual surfaces of the upper incisors, does transmit most of the force of the lower incisors to the palatal soft tissues. The retention of recently rotated teeth with a Hawley-type plate is by no means certain even when additional spurs or springs are added to augment the action of the labial bow.

Sved (1944) introduced a plate bearing the well-known flat or inclined bite plane but with the plastic extended over the incisal edges and on to the incisal quarter of the labial surfaces of the incisors and canines (*Fig.* 1 B). The result is: (*a*) a certain means of retaining rotated incisors—it will even effect the correction of a minor relapse; and (*b*) a bite-plate carried by, and transmitting force to, the upper incisors and canines. When a reduction in incisal overbite is intended the appliance is worn day and night. As a retaining plate it is sufficient that it be worn at night only.

The adaptation of the plate to the lingual incisal, and partly labial surfaces ensures its retention without the use of clasps or cribs. Processed in clear acrylic resin it approaches the ideal appliance æsthetically (*Fig.* 2).

The construction is simple. The model should be of artificial stone so that the tips of the incisors and canines will present the maximum resistance to crushing forces in processing. Sved recommends that the model be coated with 0·003 in. tin foil, but the writer prefers a double application of the cold alginate mould seal. To obtain a good clear acrylic resin allow 24 to 48 hours for the flasking plaster to dry after boiling out the wax and before applying the mould seal and packing the acrylic.

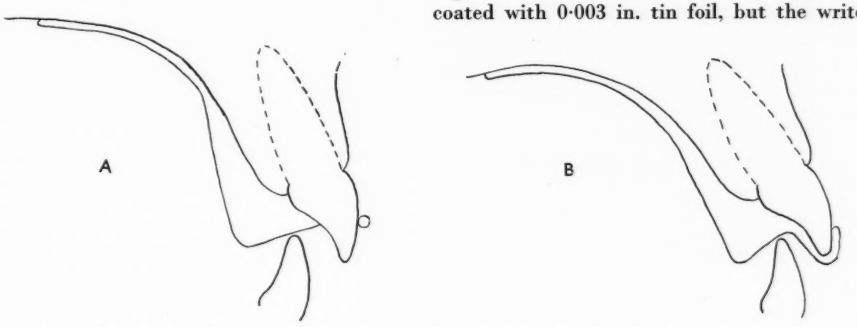


Fig. 1.—A conventional upper bite-plate (A) and all-acrylic Sved bite-plate (B). Sagittal sections.

When the plate is inserted the bite plane should be adjusted by grinding to proper width, height, and inclination.

The lower plate is similar to the upper in that it consists of a lingual base extended to the second deciduous or first permanent molars, it caps the incisal edges and the tips of the canines, but it carries no bite plane. Upper and lower plates may be worn together, but many cases respond to the use of the upper Sved bite-plate alone.

In Class I malocclusions where one or more upper incisors are in lingual occlusion, the addition of a bite plane to a lower Sved bite-plate

provides a very useful orthodontic appliance—the "lower inclined plane". Here again, the final shaping of the plane is effected by grinding when the appliance is inserted. *Fig.* 3 shows the outline of the plate prior to grinding. It has been built up higher and wider

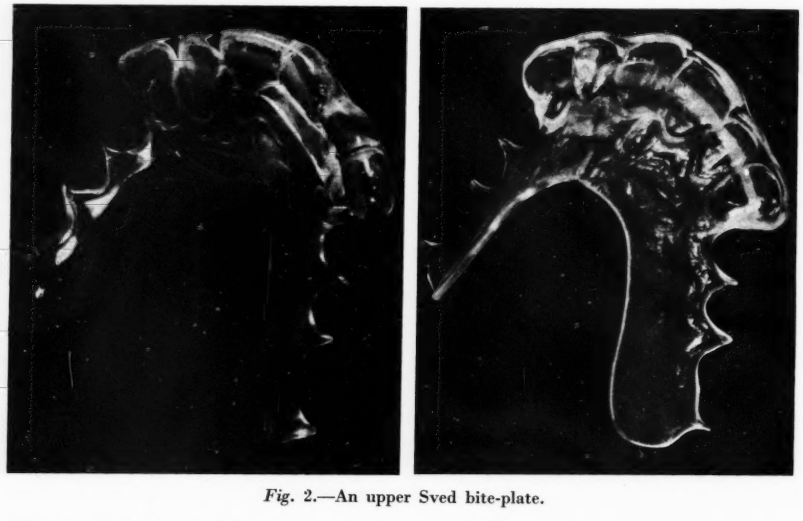


Fig. 2.—An upper Sved bite-plate.

than will be needed. The inclined plane should be made as steep as possible so as to bring about a maximum of labial movement of the

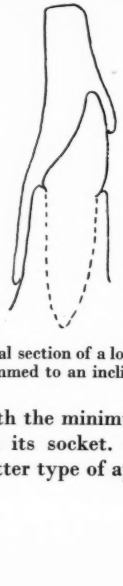


Fig. 3.—Sagittal section of a lower plate before being trimmed to an inclined plane.

upper incisor with the minimum of depression of that tooth in its socket. Kingsley's comments on this latter type of appliance, written seventy-odd years ago, are pertinent: "The inclined plane . . . was much recommended in the earlier text-books. . . . It consists simply of a plate adapted to the jaw, opposing by a sliding surface the offending teeth. For example: The incisors of the upper jaw may be shutting inside the lower teeth. To correct this deformity, an inclined plane may be made of any of the materials which are used as a base for artificial teeth, accurately adapted to the incisors of the lower jaw, with a process extending upward and backward so that it shall impinge upon the lingual surfaces of the offending superior incisors at every occlusion of the jaws".

REFERENCES

HAWLEY, C. A. (1919), *Dental Cosmos*, **61**, 6.
KINGSLEY, NORMAN W. (1880), *Oral Deformities*. London: H. K. Lewis.
SVED, ALEXANDER (1944), *Amer. J. Orthodontics*, **30**, 10.

"In the fields of observation, chance favours only the minds which are prepared."—PASTEUR.

SCHOOL DENTAL NURSES IN NEW ZEALAND

A UNITED KINGDOM Dental Mission has reported on the Scheme whereby specially trained dental nurses are responsible within prescribed limits for the dental health of New Zealand schoolchildren. Their report* was published on October 25.

The Mission visited New Zealand early this year in order to report to the Ministers of Health and Education and to the Secretary of State for Scotland on the work and training of New Zealand's school dental nurses. Their visit followed a recommendation to the Minister of Health from the Standing Dental Advisory Committee for first-hand information to be obtained about the Scheme.

The Mission express the opinion that the "training of the New Zealand school dental nurse has resulted in a high standard of technical efficiency in the treatment of children within the limits laid down" and that "subject to staffing limitations, the dental nurse system in New Zealand meets an urgent need".

If Britain should adopt a similar scheme, the Mission recognize that the New Zealand system might need modifying to fit in with the existing pre-school and school dental services in this country. They emphasize that it would be important to secure the fullest co-operation of the dental profession.

The New Zealand school dental nurses are under the central control of the Health Department, which is also responsible for training. Local interest and responsibility, however, is fostered by the existence of school dental clinic committees, including representatives of the school and the local community, which are responsible for certain details of administration.

Treatment is limited to enrolled children in regular attendance, and the right to treatment may be forfeited if appointments are not kept: it is recoverable by the parents having the child made dentally fit at their expense.

Under the New Zealand Scheme, which has been in operation for about thirty years, these dental nurses carry out preventive treatment, which includes such operations as scaling, polishing, and the topical application of fluoride, and remedial treatment, which consists almost entirely of fillings and a small number of extractions under local anæsthesia. Qualification follows a two years' course. For the purpose of the Scheme, New Zealand is divided into six regions, each of which has a principal dental officer who is responsible for the work of about eighty dental nurses. In each region there is also a dental nurse inspector. Auckland region, which is more densely populated than the others, has two dental nurse inspectors and rather more nurses.

In 1949 there were 253,746 schoolchildren under treatment. Nurses performed 1,674,125 operations, which included 1,139,729 fillings and 69,718 extractions, or about 100 fillings for every 6 extractions.

Excluding the cost of providing the actual clinic buildings themselves, the Scheme in 1948–9 cost £322,000 for the systematic treatment of 235,746 children—an average of £1 7s. 3d. a child for the year.

A dental nurse is responsible for 500 children, which is the number she can treat adequately in six months, paying due attention to dental education as well as inspection and treatment.

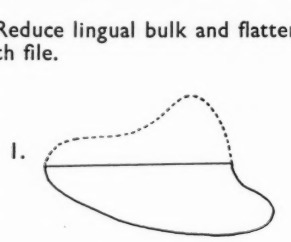
Regarding the reaction of the dental profession and the public to the Scheme, the Mission observe: "We were left in no doubt that the Scheme has the full support of the profession; indeed, what criticism we met was directed to the fact that there were not enough nurses and that more attention should be concentrated on the pre-school children". The laymen's reaction to the use of dental nurses was equally approving. Those interviewed "were rather surprised that there should be any question of the value or usefulness of school dental nurses. They appeared to accept that without question, and, like several of the dentists we met, many sent their children to be treated by the dental nurse".

* *New Zealand School Dental Nurses: Report of the United Kingdom Dental Mission.* H.M. Stationery Office, price 1s. 3d.

ILLUSTRATED HINTS

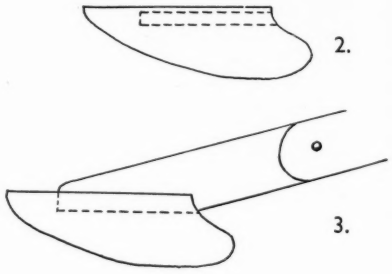
TO CONVERT AN ACRYLIC TOOTH TO AN ACRYLIC FACING

1. Reduce lingual bulk and flatten back on smooth file.



2. Drill down centre of tooth just underneath the surface with a fissure bur size of backing rib.

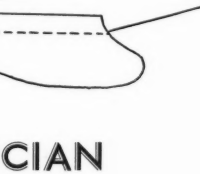
3. Use a small shaped knife blade and heat enough to sink into the thin surface of acrylic covering the channel. Drill down the channel again and remove any roughness with a pen-point and the result is a clean-cut facing having the appearance of a manufactured product.

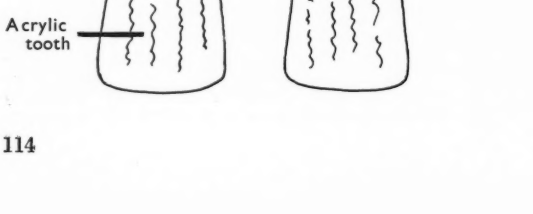


FOR THE TECHNICIAN

USE OF A JEWELLER'S LENS

A jeweller's lens will be found to be a very valuable help in both carving up the wax patterns for inlays and especially for examining *all* castings prior to passing them on to the surgeon. Those minute "spots" which cause trouble when fitting are easily seen and can be removed in the usual way with a small carborundum stone. These lenses can be purchased easily and quite cheaply, and once used you will be careful never to mislay them.





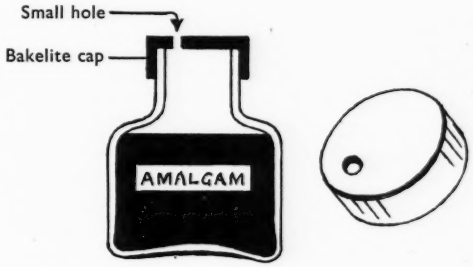
SIMPLE METHOD OF INSERTING A GOLD INLAY INTO AN ACRYLIC TOOTH

Cut a piece of thin gold plate to size and shape required, warm slightly and press into position on the tooth, using a hot flat instrument of suitable pattern. Disk and polish.

FOR THE NURSE-RECEPTIONIST

POURING AMALGAM

If you use an amalgam supplied in a bakelite-topped bottle, drill a hole through the cap near to the edge, using a small rose-head bur. The amalgam can then be poured readily into the mortar. To save further trouble, this cap can then be screwed on to each fresh bottle used.



LETTER TO THE EDITOR

To the Editor.

Dear Sir,

Mr. Charles Dillon, in presenting his case of pulp conservation, makes certain statements, which, in the light of recent work on the pathology of the dental pulp, invite some comment.

The history is of a tooth with a highly inflamed pulp, the patient's symptoms being typical of acute hyperæmia, treated by pulpotomy and the application of calcium salts, with apparent resolution.

It is unfortunately not possible to distinguish the periapical tissues of the tooth concerned in Mr. Dillon's radiograph. He states, however, that there is some thickening of the periodontal membrane and loss of definition of the lamina dura. His assertion that this may be the result of "low grade infection" of the "vital" pulp is surely a meaningless statement.

Fish* has demonstrated that once organisms have invaded the pulp tissue, there can be no hope of the latter retaining its vitality.

It would be interesting to know how Mr. Dillon determined the vitality of the pulp. If, as he maintains, it is still vital, there can be no question of its being infected. The radiographic changes he described may be the result of chronic inflammatory or degenerative changes in the pulp, or possibly the result of abnormal biting stress, of which there is some evidence in the illustration.

The question Mr. Dillon poses is answered in the recently published paper of Castagnola and Orlay†. To quote from this paper: "It appears, at present, that cases with more than a partial pulpitis are not likely to respond successfully to either" [direct capping and vital amputation using serocalcium].

There is no doubt that pulp therapy aimed at conservation of the vital pulp has its application, but it is strictly limited. Its indiscriminate use can only lead to failure and disappointment.

Yours faithfully,

DONALD F. SOUL,
F.D.S. R.C.S.

The London Hospital,
Whitechapel, E.1.

* FISH, E. W., *Surgical Pathology of the Mouth*, 238.

† CASTAGNOLA, L., and ORLAY, M.G. (1950), *Brit. dent. J.*, **88**, 330.

DENTAL BOARD OF THE UNITED KINGDOM

CHAIRMAN'S ADDRESS AT THE OPENING OF THE FIFTY-NINTH SESSION, NOV. 15, 1950

GENTLEMEN,

With the opening of this session we enter upon the last year of the Board's quinquennial cycle. Next summer the profession will once more, in the ordinary course of events, elect representatives to sit among us and May will therefore provide the proper occasion for a periodical survey of the Board's activities. At present, however, we have before us a programme which must be expected to occupy our attention until late on Friday afternoon, and I do not propose to detain you at the outset with a long address.

One of the original members of the Board, Mr. William Guy, has died since last we met. A Fellow of the Royal College of Surgeons of Edinburgh, Mr. Guy was first appointed to the Board by the Scottish Board of Health in 1921 and then, when at the expiration of his term of office in 1924 the appointment became open to be filled by election, he was returned by his dental colleagues to serve for five more years. William Guy's distinguished appearance did not belie the man, and the Board are most fortunate in having had so forceful a personality at their service during their early years. Of him Sir Francis Acland said that "Having a great capacity for holding to his own opinion and nevertheless for working as a true colleague in trying to bring our discussions to a useful issue, he was always extremely useful both on the Board or in committee. Those whom he represented could not have been better served". Some of us met him in other spheres of activity and found him to be a wise counsellor possessed of a clear analytical brain, purposeful and determined yet scrupulously fair; the Edinburgh School has long borne the imprint of his personality. Some men must have a memorial built for them, but Guy himself built his own by his work.

We all feel great regret that Mr. Marre has left the Board. This follows as a result of reorganization in the Ministry of Health whereby he has been transferred to a different department within that Ministry. Alan Samuel Marre was appointed to the Board in May, 1946, and we have therefore had four and a half years in which to benefit from his clarity of mind and to come to appreciate the generous way in which, despite preoccupation with several most important measures of legislation, he has answered the calls we have made on him. His help has been particularly valuable at a time when the coming into force of the National Health Service Acts has considerably affected, and in some respects complicated, our work. We shall undoubtedly miss both his guidance and his friendship.

To fill the vacancy created by his departure, the Minister has appointed Mr. M. I. Michaels, a colleague of Mr. Marre, and his successor in his departmental office. We welcome Mr. Michaels gladly and with confidence born of the happy relations we have always enjoyed with his predecessors in this important appointment.

It is most satisfactory to see Mr. Warner in his place amongst us after his recent trying illness. We can with difficulty spare the counsel of so experienced a Treasurer or of a colleague so versed in the affairs of the profession, and our thanks are due to him for the way in which he has attended to our business from his sickroom. We rejoice that his health is restored and trust that his efforts on our behalf have done nothing to hinder his recovery.

The Medical Bill has now become law; and last May I mentioned the sections which are most likely to affect us. Doctors, veterinary surgeons, nurses, midwives, chemists, and indeed solicitors, too, have all received the benefit of legislation in the last few years to bring the internal administration of their professions up to date, and we may now surely anticipate with some confidence the introduction in the near future of a Bill to amend the Dentists Acts and give effect to the recommendations of the Inter-departmental Committee on Dentistry. It is five years since that Committee reported, five very important and

crowded years in the history of our profession. It may therefore prove to be not entirely unfortunate that we have had to wait for amending legislation, for we may now be able, when the time comes, to benefit from the rich experience of these years by having incorporated in the new Bill valuable provisions which could hardly have occurred to a drafting committee five years ago.

One matter, however, that was considered by the Teviot Committee is the section of the Act of 1921 under which the Board have, since their inauguration, spent well over half a million pounds of their surplus income derived from the retention fee paid by the great majority of members of the profession. This section provides that the Board shall, after paying certain prior charges, allocate any money received by them to purposes connected with education or research or any public purposes connected with the profession of dentistry. These purposes have included grants to dental schools, both for rebuilding and equipment and to help them pay the salaries of their teaching staffs. The Board have also provided bursaries to students, and money for research, post-graduate instruction, and dental health education. The Teviot Committee, recognizing not only the value of these activities but also the magnitude of the financial support they would require in the future, recommended that the State should relieve the Board, and therefore, of course, the profession, of this burden; and indeed already most of these responsibilities have been transferred to other public departments.

For example, provision has already been made for the allocation of funds to the dental schools through the University Grants Committee, and candidates for dentistry may now receive financial aid in their student years through various channels. As a result of this, two great spending departments of the Board have virtually closed down; but we retain a sense of satisfaction that our predecessors in office should have laid the foundations of reforms which have been of such evident benefit to our profession. The dental schools have progressed in these years out of all recognition and we have counted it an honour to extend and elaborate, wherever we believed that it would do good, the plans of those who went before us. It will be within the recollection of many of us that well before the conclusion of hostilities in 1945 and before the Treasury grants were made available through the University Grants Committee, we were able to make our plans and offer an opportunity to many of the teaching schools to appoint men, newly demobilized from the Services, who, without the Board's grant, might have been permanently lost to the schools, to undertake the training of the students who would otherwise have overwhelmed the skeleton war-time staffs. I think you will agree that it is a gratifying recognition of the value of all these undertakings that they should have been accepted as a responsibility of the State.

It will also be remembered that the Dental Board allocated public money to dental research as early as 1923 and continued to contribute very substantially to the cost of dental research even after the Medical Research Council had taken over its direction. This form of subvention was continued until the outbreak of war, when the acute shortage of dental manpower interrupted the prosecution of research. After the war was over, however, the Dental Committee of the Medical Research Council was revived; but then, as in the case of education, the State became responsible for the whole cost of the enterprise.

The authority to spend our surplus funds, however, remained; and very soon new projects were brought to the notice of the Board which were clearly of great merit but which did not fit into any of the channels through which Exchequer money flowed. Among these, I would refer to the Post-graduate Bureau which has grown under the able direction of Mr. Broderick to be a most valuable instrument for co-ordinating and stimulating post-graduate facilities. The timing was most fortunate; the institution of the Bureau coincided with the new charter of the College of Surgeons and the founding of their Dental Faculty. The Institute of Dental Surgery was established by the British Post-graduate Medical Federation at the same time, and

students from all over the world were asking for just the facilities that the Bureau had sought out and correlated. This provision of post-graduate training in the United Kingdom is very actively increasing and plans are being made here to meet the demand for teaching of a kind which in the past was often sought in institutions now virtually closed to candidates from soft currency countries. The need for the Bureau is greater than ever and will no doubt increase; and it does appear that, at least for the present, there is no more appropriate body than the Board to give it a home and means of existence. You will therefore be asked to consider securing its continuance, at least for a time, whatever may befall in the way of new legislation.

There are other ways in which this statutory duty of the Board to allocate funds to "purposes connected with dental education and research or any public purposes connected with the profession of dentistry" is being used which it would not perhaps be in the public interest to discontinue and for which no other sponsor can readily be found. A most active and fruitful advisory sub-committee, working under our own committee on dental health education, has been busy for two years reviewing and re-designing the material needed for this purpose. The result of their labours has been to provide a model series of posters, pamphlets, charts, and filmstrips, and while it could hardly be regarded as the duty of the Board or the profession to spend large sums on the dissemination of this material, I know of no body more appropriate than the Board to sponsor its design.

Another activity of the Board which costs a little money, little in comparison with the purpose it serves, is that of reviewing teaching films and making those that are of general interest available to the undergraduate dental schools and to the profession. This project is in its infancy but, again, there is no one else to fulfil this function and we have undertaken the task in response to specific requests from the teaching schools for such material. I feel that it might be well to give further consideration to the advisability of deleting from the Act the section which makes these activities possible, for I cannot see where else public needs of this kind could be satisfied. The additional cost to individual members of the profession is very small and I would remind our colleagues that the retention fee is still only £2 2s., compared with £4 in 1938. Even if the cost were great I feel that our profession has already established, in cheerfully accepting the financial responsibility for these public duties, a record of which they may well be proud and one which it would be a pity to cast away entirely.

Members of the Board will have read with interest the Report of the United Kingdom Dental Mission on New Zealand School Dental Nurses. No specific recommendations are included in this report, though the possibility of His Majesty's Government inaugurating some like system of dental auxiliaries is visualized in the concluding paragraphs; and the appointment of the Mission, following upon a recommendation to the Minister of Health by the Standing Dental Advisory Committee, is itself evidence of the importance which the Ministries concerned attach to the solution of the problem of providing dental treatment and advice for the children in the schools of the United Kingdom. They will undoubtedly give the most careful consideration to the lessons to be learnt from the New Zealand Scheme, and I think we should assume that in the course of these inquiries the Board may be consulted. I have accordingly asked the Registrar to bring the matter before us at this session.

It will not have escaped your notice that the reconstruction of this building is now under way. Although the disorder may still appear very great, I am assured that the work is nearing completion and that when we meet again, in the early part of next year, we shall be able to enjoy a standard of convenience and comfort which we have not known in the last decade.

"Good counsellors lack no clients."—SHAKESPEARE in *Measure for Measure.*

NATIONAL HEALTH SERVICE NOTES

GENERAL DENTAL SERVICES

Amending Regulations

THE National Health Service (General Dental Services) Amendment Regulations, 1950, enable practitioners to use Form E.C.17 with certain modifications when carrying out the following treatment: (*a*) emergency treatment in respect of which Form E.C.17A could be used; (*b*) repairs to dentures at a scale cost not exceeding 35s. per denture; (*c*) arrest of bleeding; (*d*) domiciliary visits in connexion with arrest of bleeding or treatment falling under sub-paragraph (*a*).

A practitioner who carries out the abovementioned items of treatment under the provisions of these Regulations will not be obliged to secure the patient's dental fitness or to complete the chart in Part 7 of Form E.C.17 (he will, however, still be obliged to examine the patient) and only the treatment carried out need be entered in Part 8 of Form E.C.17.

The Regulations also contain provisions:—

1. For the revision and bringing up to date of the list of drugs set out in the Third Schedule to the General Dental Services Regulations:

2. For the revision of the Conditions with respect to Materials which form Part III (II) of the Schedule to the Fees Regulations, as follows:—

a. To enable diatoric teeth to be used for the anterior teeth in plastic (as well as vulcanite) dentures when artificial gum is necessary.

b. To prohibit the use of acrylic resin materials for inlays;

c. To allow the use of translucent silicate cements for fillings in first and second premolars (as well as in anterior teeth) except where occlusal surfaces are involved.

List of Prescribed Drugs

The Minister of Health has revised, as from Nov. 1, 1950, the list of drugs which may be dispensed on the prescription of practitioners providing general dental services. The revised list, which should be substituted for that contained in E.C.N.2, is as follows:—

LIST OF PRESCRIBED DRUGS

Drugs

Acidum Acetylsalicylicum.
„ Benzoicum.
„ Boricum.
„ Tannicum.
Alumen.
Aqua Chloroformi.
„ Menthæ Piperitæ.
Borax.
Caffeina.
Calcii Lactas.
Emulsio Chloroformi.
„ Menthæ Piperitæ.
Glycerinum Acidi Tannici.
„ Thymolis Compositum.
Hydrargyri Subchloridum.
Liquor Axorubri.
„ Formaldehydi.
„ Hydrogenii Peroxidi.
„ Iodi Mitis.
„ Sodæ Chlorinatæ Chirurgicalis.
Magnesii Sulphas.
Oleum Caryophylli.
Phenacetinum.
Phenol.
Potassii Chloras.
„ Permanganas.
Quininæ Sulphas.
Sodii Bicarbonas.
„ Chloridum.
„ Perboras.
„ Sulphis.
Tinctura Pyrethri.
Zinci Chloridum.
„ Sulphas.

Compounded Drugs

Capsulæ (*Capsules*):—
Capsulæ Pentobarbitoni Sodii ¾ and 1½ gr.
Cataplasma (*Poultice*):—
Cataplasma Kaolini, B.P.
Collutoria (*Mouthwashes*):—
Collutorium Acidi Tannici, N.F.
„ Formaldehydi, N.F.
„ Phenolis Alkalinum, N.F.
„ Sodii Chloridi Compositum, N.F.
„ Thymolis Compositum, N.F.
„ Zinci Sulphatis et Zinci Chloridi, N.F.
Gargarisma (*Gargle*):—
Gargarisma Ferri Perchloridi, N.F.
Misturæ (*Mixtures*):—
Mistura Magnesii Hydroxidi.
Mistura Magnesii Sulphatis Alba, N.F.
Pigmentum (*Paint*):—
Pigmentum Arseni et Ipecacuanhæ, N.F.
Solvellæ (*Solution-tablets*):—
Solvellæ pro Collutorio, B.P.C.
„ Boracis et Benzaminæ Compositæ, B.P.C.
Tabellæ (*Tablets*):—
Tabellæ Acetomenaphthoni, B.P.
„ Acidi Acetylsalicylici, B.P.
„ „ „ Compositæ, B.P.C.
„ „ „ et Quininæ Compositæ (Drug Tariff).

Tabellæ (*Tablets*)—contd.
Tabellæ Acidi Ascorbici, B.P.
„ „ Nicotinici, B.P.
„ Butobarbitoni, B.P.C., 1½ gr.
„ Calcii cum Vitamino D, B.P.C.
„ „ Lactatis, B.P.
„ Codeinæ Compositæ, B.P.
„ Nicotinamidi, B.P.
„ Phenobarbitoni, B.P., ¼, ½, 1, and 2 gr.
„ Sulphathiazoli, B.P., 0·5 g.
Trochisci (*Lozenges*):—
Trochisci Formaldehydi, B.P.C.
„ Penicillini, B.P.

Removal of Disqualification

The disqualification imposed by Section 42 (8) of the National Health Service Act, 1946, upon the following dentist has now been terminated:—

Mr. J. H. Port, 251, Vicarage Road, Leyton, E.10.

HOSPITAL MANAGEMENT COMMITTEES

Filling of Vacancies

1. The action to be taken by Boards in filling vacancies on Management Committees arising on March 31 next, and the general principles by which they should be guided, are fully set out in R.H.B. (49) 143, to which the attention of the Board is drawn. The Minister wishes, however, to take the opportunity of reminding Boards of the importance of avoiding any tendency towards too large a professional or staff element in the membership of the Committees (*see* paragraph 5 (*a*) and (*c*) of R.H.B. (49) 143). In his view Boards should not appoint a Management Committee's officers as members even of another Committee unless there are exceptionally strong reasons for doing so.

2. Paragraph 5 (*b*) of R.H.B. (49) 143 stated that medical and dental members of Management Committees should normally be derived from names proposed by the medical and dental staffs of hospitals. This was not intended—as appears to have been assumed in some instances—to imply the complete exclusion of medical or dental members from other sources. Where a Board wish to include a general practitioner among the professional members, they will no doubt consider any names put before them by the Executive Council, whom they are in any case obliged to consult, or by the Local Medical or Dental Committee.

HOSPITAL DENTAL STAFFS

Terms and Conditions of Hospital Medical and Dental Staff (England and Wales)

Certain amendments to the above booklet have been made to consolidate points agreed on since the first issue of the booklet on June 7, 1949, up to the end of May, 1950. This "Amendment List I" does not, therefore, include any Whitley Council decisions.

PREVIEW

No. 5 JANUARY

Surgical Cases from Dental Practice
S. Kilshaw Rigg, L.D.S. R.C.S. Eng., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S.

Observations on a Few Treated Orthodontic Cases
W. Trevor Johnson, L.D.S. R.C.S. Eng.

Cleft Palate *Michael C. Oldfield, M.B.E., D.M., M.Ch. Oxon., F.R.C.S.*

The New Zealand School Dental Nurses Scheme
C. H. I. Millar, L.D.S. V.U.Manc.

Illustrated Hints Parliamentary News Society Notes
National Health Service Notes Abstracts Book Reviews

COLOURED CHART No. 3

PARLIAMENTARY NEWS

Questions and Answers

Tyconium Dentures

Mr. Peter Smithers (C., Winchester) asked the Minister of Health whether he would explore the possibilities of manufacturing tyconium dentures for the National Health Service in view of the excellence of this material and the low production cost after the initial outlay has been met. (*W.*, *Nov.* 8.)

Mr. Bevan, in a written reply, said: I understand that tyconium is not available in this country, but I am already in close touch with investigations into the use of similar alloys for the manufacture of cast dentures.

School Dentists in Wiltshire

Mr. Hollis (C., Devizes) asked the Minister of Education whether he was aware that in Wiltshire there were only six school dentists as against an establishment of nine, and that, as a result, the infants' school at West Lavington had not received a visit from a dentist for the last two years. (*Th.*, *Nov.* 9.)

Mr. Tomlinson, in a written reply, said: I am aware that there is a shortage of school dentists in Wiltshire as elsewhere in the country, and that as a result children in certain parts of the county are unable to have regular dental inspection. Special arrangements are, however, made by the local education authority to give emergency treatment to children in these areas.

Dental Treatment on Islay

Major McCallum (C., Argyll) asked the Secretary of State for Scotland if he was aware of the serious position in regard to dental services on the Island of Islay; and if he would give powers to Executive Councils, similar to those already given in regard to medical officers, to enable them to provide residential accommodation for dental officers practising under the National Health Service Act. (*T.*, *Nov.* 14.)

Miss Herbison replied: I am aware that dental treatment in Islay is provided by one dentist who visits the island for about one week every three months. As regards the latter part of the question, the powers of Executive Councils could not be extended in this way without legislation which my rt. hon. friend could not promise to promote, but the Department are continuing to explore all possible ways of improving the dental treatment for the people of Islay.

Major McCallum: This is a very serious situation. On this island of 4000 people they are denied a dentist except for one week in three months. Can she not persuade her rt. hon. friend, the Secretary of State for Scotland, to find some means of giving power to local authorities or the County Council to obtain accommodation for a dentist. If accommodation is provided the dentist would be there.

Miss Herbison: Next week or the following week an officer from the Department is going there to discuss the question of some accommodation which has been offered. He will have full consultations with local authorities. I must thank the hon. member for his efforts in this matter. They are fully appreciated.

Alien Dentists

Mr. Awbery (Lab., Bristol, C.) asked the Minister of Health, in view of the shortage of dentists, if he would introduce legislation to enable qualified dental surgeons from European countries, who had a practice in their own countries before becoming domiciled here, but who were not qualified for registration, to practise here. (*Th.*, *Nov.* 16.)

Mr. Bevan, in a written reply, said: For the protection of the public we must ensure that foreign-trained dentists admitted to practise here are no less well qualified than British trained dentists. Subject to this principle I am about to discuss with the bodies concerned at a convenient opportunity, the question whether existing arrangements can be improved.

Salaries of School Dental Officers

Squadron-Leader Albert Cooper (C., Ilford, S.) asked the Minister of Education if any decision had yet been reached on the salaries of school dental officers; and if he would make a statement regarding the present condition of the School Dental Service. (*Th.*, *Nov.* 16.)

Mr. Tomlinson, in a written reply, said: No, sir. Negotiations on the establishment of salary scales for dental officers employed by Local Authorities are still proceeding through the Dental Whitley Council. The latest figures I have show that there were at the beginning of June the equivalent of 734 full-time dental officers employed by Local Education Authorities in the School Dental Service. This compares with figures of 738 at the beginning of this year and of 866 at the beginning of 1949.

School Dental Service in Lewisham

Sir Austin Hudson (C., Lewisham, N.) asked the Minister of Education whether he was aware that the School Dental Service in North and South Lewisham was so understaffed that each child had to wait a year before receiving attention; and what steps he proposed to take to improve the position. (*Th.*, *Nov.* 16.)

Mr. Tomlinson, in a written reply, said: I am aware that the School Dental Service in Lewisham is seriously understaffed. I understand, however, that although children may have to wait for periods of up to a year for routine treatment, the local education authority have arranged for children to have emergency treatment at short notice. I hope that the present negotiations on the Dental Whitley Council will result in a satisfactory settlement which will substantially improve the position in the School Dental Service.

"C" Carrier's Licences

Mr. Hare (C., Sudbury and Woodbridge) asked the Minister of Transport whether he would take the necessary action to relieve professional men, such as doctors, dentists, and veterinary surgeons in rural areas, from the need to obtain carrier's licences for estate motor-cars used in the normal course of their duties. (*M.*, *Nov.* 20.)

Mr. Alfred Barnes, in a written reply, said: I am giving consideration to the desirability of exempting dual purpose vehicles from the need for "C" carrier's licences when used by doctors, veterinary surgeons, or dentists in the normal course of their professional duties.

School Dentists in Wales

Mr. David Llewellyn (C., Cardiff N.,) asked the Minister of Education what is the establishment of school dentists in Cardiff and Glamorgan, respectively; and what deficiencies exist. (*M.*, *Nov.* 20.)

Mr. Tomlinson, in a written reply, stated: Following is the information:—

	Establishment	*Deficiency (in terms of whole-time officers)*
Cardiff ..	7	2
Glamorgan ..	38·5	26

School Dental Service

Mr. C. Wilson Black (C., Wimbledon) asked the Minister of Education how many dentists were at present employed in the School Dental Service; and how many more were required to bring the Service to full strength. (*Th.*, *Nov.* 23.)

Mr. Tomlinson; The number of dentists employed in the School Dental Service at the beginning of June was the equivalent of 734 full-time officers. For a complete service of dental inspection and treatment in which every child requiring treatment received it would—he estimated—require one dentist to every 3000 children.

An additional 1150 dentists would have been needed last June to give such a ratio. Owing to the general shortage of dentists it will be impracticable to achieve this ratio for many years and my immediate aim is to get the Service back to the 1948 level, when it was able to offer preventive treatment on an effective scale to every child. For this purpose some 200 extra school dentists will be needed in England and Wales.

Mr. Tomlinson said no local authorities, to his knowledge, were completely without dental treatment. Many, he added, were making their own arrangements.

Dental Mission—N.Z. Report

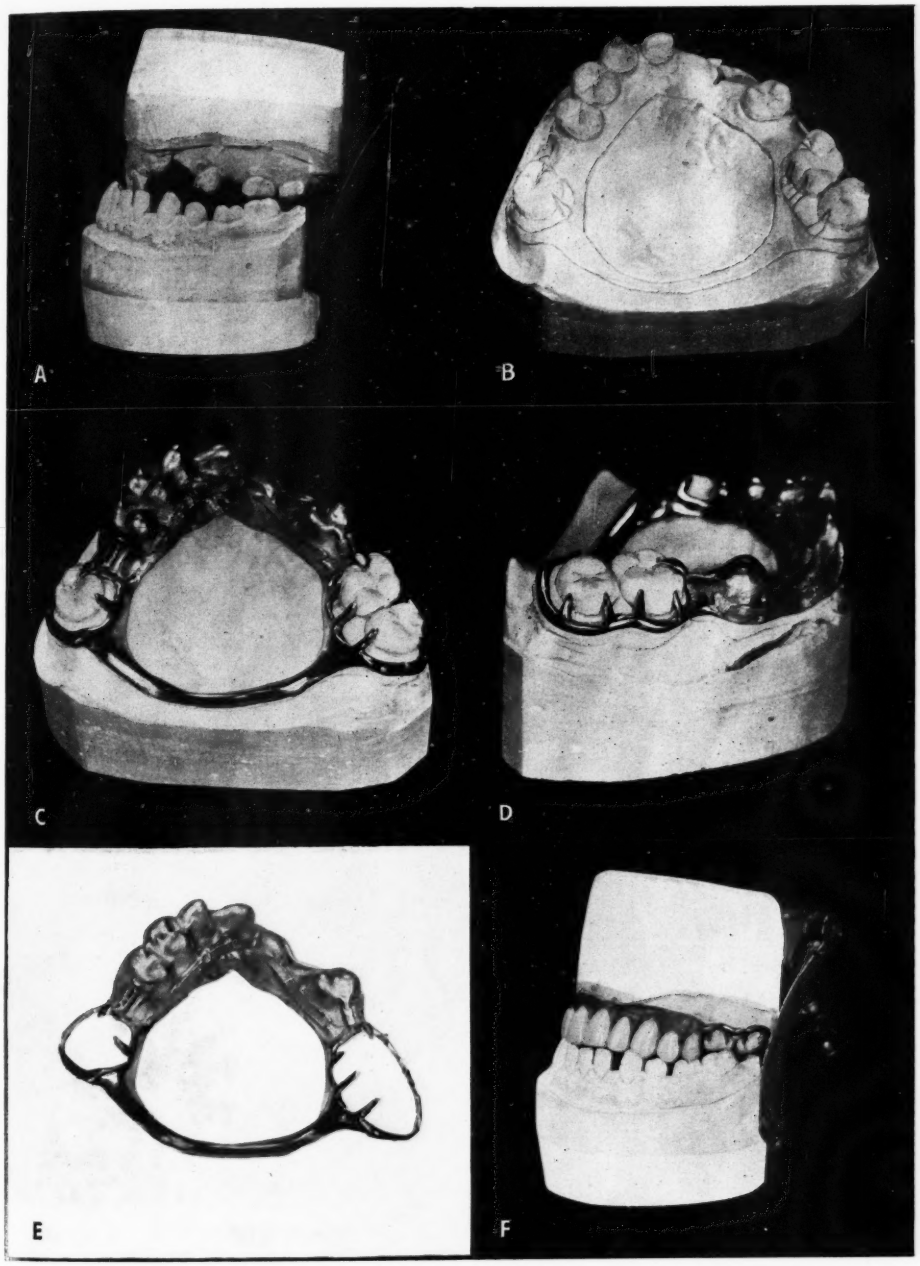
Mr. Hastings (Lab., Barking) asked the Minister of Health if he had yet considered the report issued by his department on the Dental Mission on New Zealand School Dental Nurses; and whether he is giving consideration to the adoption, with any necessary modifications, of the same system in this country. (*Th.*, *Nov.* 23.)

Mr. Bevan, in a written reply, said: I am about to consult the dental profession and others interested on the questions raised by this Report.

Issued with "The Dental Practitioner" Dec., 1950, Vol. I, No. 4

PARTIAL DENTURE CONSTRUCTION PROBLEMS

CHART No. 2



The case as presented (A) shows malocclusion and loss of function. This was due to an operated cleft, resulting in gross misplacement of anterior teeth. To restore natural function and appearance it was decided to construct a metal skeleton plate, covering the anterior teeth, retention being secured by Roach type clasping of the molars. Careful surveying was necessary to ensure insertion of the plate, and also that adequate retention was provided by the clasp bars engaging an undercut. The teeth were set up anteriorly to the natural incisors and premolars, restoring function and greatly enhancing appearance. A, The case; B, The design on the model; C, The plate cast; D, Detail of clasps; E, The plate off the model; F, The finished denture.

C. T. YOULES.

SOCIETY NOTES

BRITISH SOCIETY OF PERIODONTOLOGY

PRESIDENTIAL ADDRESS

(Delivered by the President, C. B. de Vere Green, F.D.S., at the commencement of its Second Session, on Monday, Oct. 9, 1950, at the Eastman Dental Clinic)

LADIES AND GENTLEMEN,

May I say at the outset how deeply I appreciate the honour which you have paid me by installing me as your second President. I must confess that it is with a certain sense of temerity that I occupy this position, for not only do I sense the honour paid me by the Society itself, but I feel somewhat like the embarrassed schoolboy called before the form to deliver an oration, not only before his classmates but also in front of his teacher and master.

This Society was most fortunate in having as its first President, Dr. Fish, a dental scientist whose work is known not only to us in this room but throughout the world, and whose eminence I would not attempt to emulate. The functions of a president of a society are clearly defined in its constitution and by-laws, and I can assure you that those laid down for this Society are not at all onerous; in fact, I am quite sure that Dr. Fish would agree that the chief function of the President of this Society is to do what its Executive Council tell him. That, then, will be my main task in this coming Session.

I have been delving into the past to try and ascertain the reason for a presidential address; I cannot find one. One would have imagined that with the President taking the chair throughout the meetings of the year the members of any particular society would have had ample opportunity to hear him speak. Mark you, not every society with an elected president indulges in an annual presidential address; unhappily for me, Dr. Fish set that precedent as President last year, and so I suppose that from henceforth future generations of those given by their fellow members the responsibility of occupying the Presidential chair in this Society will for evermore follow suit. It would appear that the custom or the habit has now been firmly established.

It is my desire for a few minutes this afternoon to draw your attention, in a few reflections, to the importance of habit, not only in our daily lives, not only in the conduct of the world's affairs, but in the study of our own particular field. I would turn you for a few considerations to the importance of habit and its relationship to periodontal lesions. At the outset I would remind you that just as in our daily work-a-day lives, social lives, cultural lives, and even perhaps in our artistic lives, habit plays a most important part, as in those fields, so also in the dental fields, there are *good* and *bad* habits; there are, also, *clean* and *dirty* habits. Many of the habits to which we have accustomed ourselves in our own lives have been handed down to us by our parents, they in their turn by their parents, by their fellow men, by the customs and laws of their own community, and, wider still, by their own particular civilization. On the surface they may seem unimportant, and these customs and habits may be completely unconnected with the science of periodontology; but may I remind you for one moment of one or two *racial habits* which I personally feel have a great bearing on this all-important subject. For example, those of us who have had an opportunity to examine the mouth of one of the poorer class of Indian who indulges in the habit, and I stress that word habit, of betelnut chewing must have noticed the high incidence of periodontal disease.

On the other hand, one can take the Abyssinian or the West Indian who is continually chewing a sugar cane and by the virtue of its fibrous content, preserves his gingival margin in a most healthy condition—a good habit. I am not suggesting, of course, that one will introduce the habit of chewing sugar cane whilst walking down Oxford Street, but, nevertheless, in that simple habit by a primitive race, there is at once linked up with

this, our own particular civilization, the importance of friction on the gingival tissues.

I myself have not as yet had the opportunity of visiting Africa, but I would venture to suggest that the habit, passed on from parent to child through the generations, of oral hygiene by means of a tooth stick rather than a toothbrush will produce a healthy gingival condition. Of course, consideration of these habits merely by themselves and on the surface would produce very little result. There are so many other factors to be taken into consideration at the same time: those of diet, of occupation, of physique, and so on. I have been told that certain of these peoples who use a tooth stick are overzealous and that they actually strip away the epithelial attachment, causing the teeth to be exfoliated.

It would seem that from time immemorial there has always been noticed by men of thought a distinct need for the establishment of a habit, known in those days as in these, of oral hygiene.

Pliny, who wrote in about the year A.D. 50 concerning dental caries, stressed the importance of a systematic oral hygiene habit to be cultivated by those who lived on the civilized diet of that era. Almost a century later we can read in some of the Arabic literature references to toothpicks, with the exhortation that the prophet himself says; "YOU SHOULD CLEAN YOUR MOUTH FOR THIS IS A MEANS OF PRAISING GOD". I am of the firm conviction that even in those far-distant days men were trying to instil the habit of oral hygiene.

A great deal of the part played by propaganda in the dental world to-day is directed towards oral hygiene; in fact, I think it could safely be stated that with a regular and scientifically-worked-out oral hygiene programme, dental disease could to a large extent be prevented. This, of course, sounds a very easy solution to the problem of dental disorders, but those of us who have a family realize how quite frequently it requires a great deal of patience and time in order to establish a habit in the young child. In these fast-moving days there is no doubt at all that the tendency is to omit from our lives those habits which at the time we do not consider essential.

It would seem to me to have become a habit in the days in which we live for men not to grow a beard. I would suggest that on this day, Monday, Oct. 9, 1950, there have been expended throughout this world thousands of man-hours on shaving beards. I also suggest that there has been nothing like that time expended on the habit, and I would stress that word again, the habit of oral hygiene. I wonder why? Is it because it is generally accepted that the face is seen and the teeth are hidden? Or is it because of ignorance? I believe it to be a mixture of both. Therefore it behoves those of us who have the power and the opportunity, who come into contact in our daily work with seekers after the truth, to tell them the truth. I would not venture at this moment to quote to you a simile applicable to the female of our species, but I have no doubt whatsoever that she has at least one habit, possibly more, which occupies as much of her time as her male companion expends on his daily shave.

Apart from the habits of oral hygiene, what other habits are there that can influence this question of periodontal disease? I myself believe there are many; I am quite certain that were we to discuss this subject, a great number of habits would come to light, of conditions and causes observed by those of you in this room. May I be permitted to quote some which I believe would show the relationship between a habit and periodontal disease?

We all know that there are certain habits of childhood which undoubtedly produce malocclusions: thumb-sucking, blanket sucking, pencil sucking, and so on. There is no doubt whatsoever that malocclusions, which, of course, will produce a traumatic occlusion, can be the forerunner to a very severe and often fatal periodontal lesion.

Talking about traumatic occlusion, what about the patient who continually grinds his teeth, perhaps at night only? I believe there are a great number of patients who do grind their teeth, but because of the arrangement of those teeth and the balance of their occlusion may not provoke a periodontal lesion; in other cases, however, with high cusps and a very locked bite, where a gliding movement

may not take place over a very big field, this habit of bruxism, as I have seen it called in American literature, does undoubtedly produce periodontal disease.

Another group which I feel can fall into this category of traumatic occlusion are those patients who indulge in the habit of unilateral mastication; it can be a habit more often than not, and is caused by some other dental deformity on the opposite side of the arch—caries, missing teeth, traumatic occlusion, or even a periodontal condition itself; perhaps periostitis may be present.

There are the habits which one encounters but which are not always readily recognizable when a patient is seated in a dental chair—I refer to nervous and occupational habits. In the former I would include those people who may be continually biting their cheek, lip, or tongue. The biting of finger-nails may also produce extensive damage to the periodontal tissues. Loose, badly balanced, ill-fitting, partial dentures may cause the patient continually to shift them. The nervous pipe smoker, though most smokers have a placid nature, may cause change. There are occupational habits which can have a marked effect, such as the shoemaker with his mouth full of brads; the carpenter, who also for speed holds nails in his mouth; the needlewoman who holds pins between her teeth or bites the thread, will surely produce a traumatic occlusion.

Before leaving the question of trauma it is only right I feel to note that a traumatic occlusion habit may result from ministrations by ourselves—that restoration, beautifully contoured, but either too high or too low; that perfectly fitting bridge, but out of balance, both may cause the patient to "play with it".

Lastly, I would draw your attention to the habit of mouth-breathing. Mouth-breathing, either during the day or at night, can be due to many causes. It can be due to a condition of the adenoidal tissue, to the condition of the tonsil, to the condition of the nasal air-passage itself, to malocclusion, to some lack of growth, perhaps of the upper lip, to overgrowth of the premaxilla; but there are a great number of cases where one finds all these other symptoms or rather causes are absent, and one can only blame the drying of the epithelial surface, thereby producing a gingivitis with all its sequelæ, to a habit of mouth-breathing. Now if this habit be detected in an adolescent, as a rule it can be quite easily rectified; it can also be broken in the adult, although this sometimes is not quite so easy.

May I ask you, therefore, as you look at that patient to-morrow who has the beginnings of a periodontal lesion, to spare a thought and ask yourself—is this a case where I should establish a habit, a habit of oral hygiene, a habit to use the toothbrush, a mouth-wash, and the tooth wood point? I would emphasize here that the incorrect use of the toothbrush, toothpick, and floss silk can become such bad habits that irreparable damage can be done to the gingivæ and attachments.

I well remember, as a student, hearing Professor Pembury, the physiologist, once say that it was "just as dangerous to place a toothbrush in a man's hand without instructing him how to use it, as it was to give a bread-knife to a lunatic".

May I, therefore, establish for my patient a good habit; or, is there some habit which the patient has and from which I should try and relieve him, before it is too late?

Robert Graves writes in his *Epitaph on an Unfortunate Artist* these words:—

> "He found a formula for drawing comic rabbits,
> This formula for drawing comic rabbits paid,
> So in the end he could not change the tragic habits
> This formula for drawing comic rabbits made".

You will, I am sure, appreciate the impossibility of discussing the range of good and bad habits, of clean and dirty habits, influencing as they do the health or disease of periodontal tissues. From the raw-fish-eating Eskimo to the gum-chewing G.I. from Texas, they are as varied as is the terrain from Greenland's icy mountains to India's coral strand.

EDUCATION FOR DENTAL TECHNICIANS

A Story of Achievement

BEFORE the war there were very few classes for dental technicians in the country, the notable exceptions being at Nottingham and Hull. There was nothing that could be described as a national system for the education of apprentices, and, in the absence of any national examination, local education authorities were naturally reluctant to embark upon the expensive and somewhat risky business of fitting out a dental laboratory. In fact, none did so, and outside London facilities for training were not available. Trade union organization amongst dental technicians was practically non-existent.

In 1940, however, one of the largest unions in the country (N.U.D.A.W., now U.S.D.A.W.) became interested in the problems of dental technicians and initiated a campaign to organize them. An agreement was reached with the Union in the London area which had a few members that U.S.D.A.W. would not recruit within the London Metropolitan Police Area, but would have exclusive organizing rights throughout the rest of the country. The growth of the organization led to the demand for training classes.

At the first meeting of the National Joint Council for the craft, held in May, 1943, the following resolution was passed:—

"That in principle it is agreed that suitable centres be arranged in all parts of the country equipped with all modern apparatus and efficient instructors for the purpose of instructing apprentices and any technician who wishes to take advantage of same in one or all the branches of the craft, and that recognized diplomas or similar awards be given to successful students".

Many thought this resolution at the time to be a futile gesture, as it seemed almost impossible of achievement. Nevertheless, seven years later, very good progress has been made. As a first step an Education Advisory Committee was set up and the U.S.D.A.W. official responsible for dental technicians, Mr. G. Beardsworth, O.B.E., J.P., was appointed secretary, a post he has occupied ever since. Next, this Education Committee consulted with the City and Guilds of London and a national syllabus was adopted after long discussions.

Meanwhile Union organization in the provinces was continuing steadily, membership increased year by year, and branches were opened up in all the main centres. With the adoption of the syllabus, the task moved into the local field and the call went out from the Education Advisory Committee for the establishment of local "Joint Training Committees" in each area of major importance. A number of the Union branches acted on their own initiative, and, aided by advice and encouragement from the National Education Advisory Committee (which was in constant touch with the Ministries of Health and Education), classes slowly began to form. Manchester led the way with a full 5-year course and a full-time instructor.

At a recent meeting of the Education Advisory Committee a report of developments outside the London area was presented and gave some indication of the extent of the work and its rapid development. It is perhaps significant that wherever the Union branch has been strong and active, classes have come fairly quickly; when there is no Union branch, there is no class.

Abstracts from the report will be given in the January number.

BRITISH SOCIETY OF PERIODONTOLOGY

AT the Meeting of the British Society of Periodontology which will be held at the London Hospital Medical College, at 5·15 p.m., on Monday, Dec. 11, 1950, Mr. Colin Davis, L.D.S. R.C.S., will present a paper on "The Toothbrush"; it is felt that this subject is of vital interest to the profession and a number of toothbrush manufacturers have accepted invitations to attend. It is expected that the discussions will be of great interest, and the Society will be glad to welcome guests on this occasion.

ABSTRACTS
from Other Journals

A Safe Hæmostatic Agent

In recent years several new hæmostatic agents have been offered to the dental profession, the more common ones being thrombin, fibrin foam, gelatin sponge, and oxidized cellulose. These agents have one intrinsic weakness in that sterility is not maintained in the container. Repeated opening of the bottle or tube will contaminate the contents, and may in some cases add infection to an already infected tooth socket.

To overcome this factor phenyl mercuric nitrate has been added to oxidized cellulose. Phenyl mercuric nitrate is one of the least toxic of the mercurial salts and an efficient bactericidal agent. It is not very soluble and will remain in the socket for a long enough period to reduce the bacterial count or actually sterilize the socket.

The essential factor in oxidized cellulose is polyanhydroglucuronic acid, which has the property of rendering the cotton adsorbable and at the same time effects prompt hæmostasis when applied to oozing surfaces. Penicillin is inactivated by oxidized cellulose because of the low *p*H, and phenyl mercuric nitrate has been found to be an efficient substitute.—Strean, Lyon P. (1950), *Modern Dentistry*, **17**, No. 3, 3.

Partial Pulpectomy, an Accepted Treatment for Primary and Young Permanent Teeth

Pulpotomy or partial pulpectomy means the excision or amputation of the pulp contents in the coronal portion of the pulp chamber without disturbing the remaining pulp tissue in the root canals. It is an accepted operation on exposed teeth providing that the tooth is still vital and the treatment is performed as soon as possible after the exposure. It is invaluable where there is a fracture of an incisor tooth in a young patient, a problem in nearly every practice. The author describes his technique in detail, emphasizing the importance of complete asepsis in every stage, and the need for careful radiographs from different angles.

After the removal of the coronal portion of the pulp, the remaining vital tissue is covered with a bland paste incorporated into the blood of the wound. These pastes vary slightly in their composition and substances such as zinc oxide–eugenol, zinc oxyphosphate cement with thymol iodide and oil of cassia, calcium hydroxide and caloxyl, and calcium hydroxide by itself. The author uses a new paste by mixing zinc oxide with a saturated aqueous solution of calcium hydroxide. This is always mixed fresh and forms a calcium zincate compound over the tissue. It is the therapeutic effects of this material that primarily heals the remaining pulp. The paste is covered with zinc oxide–eugenol–rosin cement powder and when this has set the tooth may be filled with the desired material.

The pulp is walled off in healing by a new layer of deposited calcified dentine or an amorphous calcium matrix. Results with this material have proved highly successful, rapid healing taking place without pain or discomfort and causing no irritation to the remaining pulp contents. It is pointed out that despite the 90 per cent success of this method, much research is still needed before the whole process is completely known.—Gardner, Alvin F. (1950), *Oral Surg., oral Med., oral Path.*, **3**, 493.

The Treatment of Ulceromembranous Stomatitis with Penicillin Chewing Troches

Topical penicillin therapy is an accepted form of treatment for ulceromembranous stomatitis, and it was thought by the authors that its effects may be improved by incorporating penicillin into chicle-based gum products. The pressure changes associated with chewing would force the antibiotic into crypts and crevices not reached with troches or other similar methods. In this study a coated chicle troche was used as a carrier for 10,000 units of crystalline penicillin G. Twenty-nine patients, diagnosed clinically and bacteriologically as suffering from ulceromembranous stomatitis, were treated with penicillin chewing troches.

The troches were chewed for thirty minutes and repeated every two hours, and continued until the condition was bacteriologically cleared. Approximately 30 to 36 troches were necessary. This treatment was used only as an adjunct to later instrumentation, and all the cases showed excellent improvement and ultimate cure. In this series there were no reports of penicillin sensitivity, although a few cases with previous allergic responses were studied.—KARLIN, S. ALAN, and CRUTCHFIELD, WILLIAM E. (1950), *Oral Surg., oral Med., oral Path.*, **3**, 1044.

Xylocaine—A New Local Anæsthetic

A very brief survey of previously used local anæsthetics, including the introduction of cocaine in Vienna in 1884, and procaine in 1905, is followed by a description of the introduction in 1943 of a synthetic local anæsthetic in Sweden by Löfgren and Lundquist which was called Xylocaine. This is a tertiary amine belonging to the basic anilides. The first information dated from 1946 and experiments and clinical trials were carried out in the Karolinska Hospital, Stockholm, and in dental practice in the years 1946–48.

Physical and Chemical Properties.—Both xylocaine and its hydrochloride are water-soluble and highly stable. Löfgren considers xylocaine the most stable of all local anæsthetics. The commercial preparation of xylocaine without adrenaline includes an antiseptic substance and has a *p*H of approximately 7. Xylocaine-adrenaline solution has a *p*H in the region of 3·5–4.

Clinical Effects.—A fairly long description of the work published in the Swedish dental journals by Björn and Huldt is described. In their investigations, local analgesia was produced in 231 cases with xylocaine or procaine without adrenaline, or with varying concentrations of adrenaline, in 89 persons from 21 to 35 years of age. The degree of analgesia was recorded by Björn's dental stimulator. Results showed that the frequency of analgesia was considerably higher for xylocaine with adrenaline than procaine with adrenaline, and that the duration of analgesia was also considerably longer. The time for the local anæsthetic to operate was somewhat shorter for xylocaine than for procaine. Subjectively, the sensation with xylocaine injection is pleasanter, and this appears to be linked to a specific action upon the parasympathetic nervous system.

Local Tissue Reaction.—Björn has shown that complete neutralization of anæsthetic solution was somewhat sooner for procaine than for xylocaine. Experimental injections with xylocaine in animals show only a small amount of irritation (with œdema and inflammation), which disappeared in the course of a few days, but with procaine solution more severe reactions followed which lasted almost a week.

Clinical experiments have firmly demonstrated that xylocaine, in the strengths commonly used in practice, is completely free from any irritative action upon the tissues.

Combination with Adrenaline.—It has been shown that it is possible for brief periods of analgesia to utilize xylocaine without adrenaline. Xylocaine is especially indicated in patients who are susceptible to adrenaline.

Toxicity.—Goldberg has shown that subcutaneous injections of both xylocaine and procaine in the mouse result in a smaller lethal dose with increasing concentration. Xylocaine has an absolute toxicity which is greater than procaine, but considerably lower than pantocaine or cocaine.

Goldberg has defined a safety coefficient which relates an anæsthetic (volume and concentration) and lethal dose with the concentration used, speed of reaction, frequency, and depth of analgesia. He found that xylocaine has a safety coefficient 2–4 times higher than procaine; as a surface anæsthetic 5–10 times higher than pantocaine. With an intravenous injection in the mouse the toxicity of xylocaine is roughly ten times greater than for subcutaneous injection. The lethal dose for humans is 1/20–1/50 of that for the mouse.

Toxic symptoms are roughly the same for xylocaine and procaine, and may be circulatory, neurological, or allergic; they are treated in the usual way—namely, fresh air, lowering of the head, artificial respiration, and, if necessary, barbituric acid derivatives given

intravenously. A circulatory collapse necessitating the use of camphor or coramine is almost never seen.

Adler and others have shown in investigations into allergic reactions which may be produced following different local anæsthetics that xylocaine can be used safely on patients and by dental surgeons who are procaine-sensitive. In other words xylocaine has a noticeably low toxicity and is well tolerated by a sensitive patient. Goldberg has examined several reactions to xylocaine.

Action as a Surface Anæsthetic.—Goldberg applied xylocaine and pantocaine to dogs' eyes, both solutions having a *p*H roughly 5·8–5·9; alterations in the corneal reflexes were an indicator of the anæsthetic reaction.

Goldberg came to the conclusion that the action of 3 per cent xylocaine solution corresponded to a 1 per cent pantocaine solution and the action of 5 per cent xylocaine to 2 per cent pantocaine. He also showed that pantocaine was strongly irritating in a concentration of 1–2 per cent, but xylocaine, even in a concentration of 8 per cent, gave almost no irritation.

Bremer has had good results with the painting-on of solution in patients for impression taking and radiography.

Dosage.—This corresponds approximately to that of procaine. Preparations are available as follows: Xylocaine 0·5 and 2 per cent; xylocaine 0·5 per cent, adrenaline 1–100,000; xylocaine 1·0 per cent, adrenaline 1–100,000; xylocaine 2 per cent, adrenaline 1–80,000; xylocaine 2 per cent special, adrenaline 1–50,000; and xylocaine ointment 5 per cent. The solutions are available in ampoules of 20, 50, and 100 c.c.; "carpules" will be available later. For general use xylocaine 2 per cent and adrenaline 1–80,000 is the most useful concentration. In cases where one knows that analgesia is difficult to obtain, and in those cases in which one wants to have a particularly long action, xylocaine–adrenaline, the special 2 per cent solution, is indicated. Xylocaine without adrenaline is used for those patients who have a sensitivity to adrenaline, and can also be used in procedures in which a contraction of the blood-vessels is unnecessary.

Clinical Experiments with Xylocaine.—Gordh has used xylocaine at the Karolinska Hospital Surgical Department, and has found its action in infiltration analgesia (with and without adrenaline), conduction analgesia (mandibular, brachial plexus, sacral, paravertebral), surface analgesia (intubation, bronchoscopy), and spinal analgesia (cystoscopy, perineal operations), completely satisfactory. The long duration of analgesia makes it invaluable for major surgery, and especially for post-operative pain. Toxicity was not encountered in amounts of less than 1 g.; this could be considered as an absolute maximal dose.—PAULSEN, INGER (1950), *Tandlaegebladet*, **8**, 513.

Premedication for Children

The treatment of children in practice is often a heavy burden to the dentist and presents a problem which is not easy to solve. Much work and research has still to be done, but premedication undoubtedly has a place in the technique of child management in dental practice. It is of invaluable aid providing it is used with care and knowledge. It is indicated in surgical and operative procedures of long duration, for fearful and apprehensive patients as well as the problem child.

The author describes the use of the two drugs, seconal sodium and nembutal, and their administration. The difficulty of assessing the dosage is carefully explained and depends on a variety of factors. These are: case history, age, weight, mental attitude, physical activity, contents of the stomach, time of day, basal metabolic rate, level of depression desired, and the route of administration. Each factor has to be taken into consideration before the exact dose is given. From observations on 200 children it was found that the range of dosage is wide and is generally greater than has been advocated in the past, and it is better to use the smaller dose in cases of doubt. Doses vary from a maximum of 4 gr. to a minimum of $\frac{1}{2}$ gr. High dose indication should be hospitalized. Only two or three separate premedications are usually necessary, the child co-operating for further appointments.—LAMPSHIRE, EARL L. (1950), *J. Amer. dent. Ass.*, **41**, 407.

BOOK REVIEW

DENTAL MECHANICS FOR STUDENTS. By JOHN OSBORNE, Ph.D., M.D.S., F.D.S., Professor of Dental Prosthetics, University of Birmingham; Examiner to the Royal College of Surgeons of England; Universities of Glasgow and Edinburgh; the City and Guilds of London. Third Edition. 5½ × 8½ in. Pp. 400, with 244 Illustrations. 1950. London: Staples Press Ltd. 30s.

WRITTEN for both the dental student and the apprentice technician, this book covers the entire field of dental mechanics from impression materials to the manufacture of appliances for the treatment of cleft palates. A broad outline of the basic properties of the various materials used is given, without plunging too deeply into the realms of metallurgy, chemistry, and physics.

A large proportion of the volume is devoted to the all-important procedures involving the design and construction of edentulous and partial dentures, with particular reference to "setting up".

Further chapters cover the fields of crowns and bridges, copper dies, porcelain, the manufacture of acrylic teeth, and cast and swaged denture bases.

The amount of space given to inlays and bridgework appears to be somewhat inadequate, as also is the number of illustrations for the same subjects. However, it is probable that this has been done on purpose by the author, as such types of work are essentially for the more skilful operator.

This is a book to be highly recommended to all those who are learning the craft, either as future dental surgeons or technicians, and also to those who are already practising their art but are desirous of furthering their knowledge of it.

CORRECTIONS

IN the article on "A Clinical Investigation in Preventive Dentistry", by John Miller, on p. 66, col. 2, l. 35, *for* Ash No. 23 probe *read* Ash No. 12 probe.

In the article on "Refractories" by Ernest A. Schoolden, on p. 85, col. 2, l. 3, the statement that X rays travel at a much slower rate than light rays should have been modified by the addition of the words "when passing through denser media, the human body, for example".

The Editor and the Associate Editors

wish all their readers

A very Happy Christmas

and a Successful New Year